

A CHILTON

PUBLICATION

The Iron Age

UNIVERSITY OF MICHIGAN

NATIONAL METALWORKING WEEKLY

APR 30 1953

EAST ENGINEERING
LIBRARY

manufacturing
economies use
pre-coated

Thomas Strip

Thomas Strip



Cold-rolled strip steel electrolytically pre-coated with Zinc, Copper, Brass, Nickel, Lead-Alloy, and Chromium in Natural, Planished and Buffed Finishes—Hot Dip Tin and Lead Alloy Coated—Lacquer Coated in Colors—Annealed Spring Steel—Alloy Strip Steel—Uncoated Strip Steel. Carefully produced to your specifications.

a product of **Pittsburgh Steel Company**

Thomas Strip Division • Warren, Ohio

Maintenance report from user of 13 Rotor Grinders

"after 14 months
COST \$0.00"



THIS large manufacturer of electrical equipment has been using 13 Rotor B-35 Vertical Air Grinders for 14 months—two shifts per day, 6 days per week—for sanding, wire brushing and grinding. They report that not one cent has been spent for maintenance—no time out for repairs! And metal removal has been far greater than with other types of grinders . . . and the good balance make them popular with operators.

If you haven't seen these new Rotor Vertical Grinders in action, ask for demonstration today.

AIR O'TOOL

ROTOR VERTICAL SPECIFICATIONS

	B-35	B-12
Weight	10¾ lbs.	10 lbs.
Wheel Size	6" Cup	6" Cup
Pad Size	7" or 9"	7" or 9"
Speeds	6000, 5000, 4500, 3500	6000, 5000, 4500, 3500
Height	7½"	7"

For cup wheels, sanding pads, cut off wheels, wire brushing.

WRITE TODAY FOR BULLETIN No. 40



AIR

THE ROTOR TOOL CO.

CLEVELAND, OHIO

UNBIASED ANALYSIS OF PORTABLE TOOL PROBLEMS



HIGH CYCLE

ders

as

0'

al equi
Vertic
per day
crushing
cent ha
out for
greater
and the
operator

Vertic
n today

DOOL

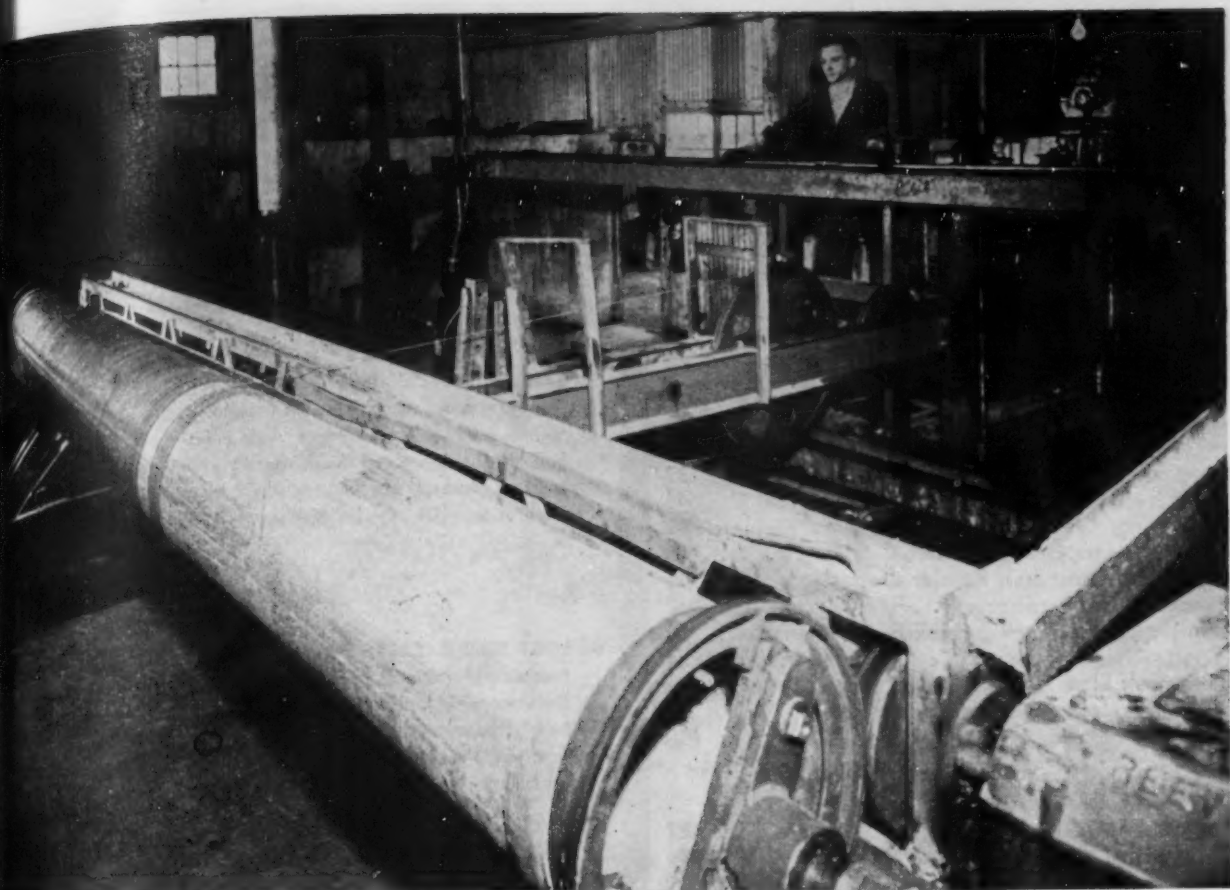
ONS

00,
00

off

o. 40

GH
CLE



After a concrete lining is spun centrifugally poured inside a steel cylinder, Bethlehem high-tensile steel wire is wound around the cylinder.

Coated with rich cement mortar, finished pipes 16-ft lengths depart for duty. Pre-stressed concrete pipes are made with diameters varying from 16 in. to 48 in.

Photographs courtesy of
Lock Joint Pipe Company



BETHLEHEM WIRE GOES UNDERGROUND in Pre-stressed Concrete Pipe

When pre-stressed concrete pipe goes to work steel wire hugs every inch of it, helping to counteract tremendous water pressures. Wound under high tension by a special machine, Bethlehem wire compresses — or pre-stresses — the steel-and-concrete core. The wire adds tremendously to the strength of the pipe. It permits a lighter

weight of finished pipe than could be obtained by using other systems of concrete reinforcement. Wire for pre-stressed concrete pipe is a Bethlehem specialty. We are continually developing many kinds of steel wire to meet special requirements and new uses. Bethlehem engineers will be glad to contribute their experience to any

problems you may have in the selection and processing of steel wire.
BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation, Export
Distributor: Bethlehem Steel Export Corporation



The Iron Age

Vol. 171, No. 18, April 30, 1953

* Starred items are digested at the right.

EDITORIAL

Begin At Home 7

NEWS OF INDUSTRY

- *Special Report: Steel's Balance Is Better 39
- *Fuel: Pressure Will Hold on Oil Country Goods. 41
- *Marketing: Getting More Warehouse Business 42
- *Management: Growing Pains Can Be Fun.... 43
- *Expansion: Boost Iron Powder Capacity 45
- *Production: Diversification Softens Cycles.... 47
- Manufacturing: Screw Machines on Defense ... 50
- *Construction: Not Enough Steel for Fabricators 51
- Personnel: Iron Age Salutes 91
- Iron Age Introduces 93
- Clearing House 150

NEWS ANALYSIS

- Newsfront 37
- *Automotive Assembly Line 56
- *This Week in Washington 61
- West Coast Report 65
- *Machine Tool High Spots 67

TECHNICAL ARTICLES

- *Better Parts Flow Trims Foundry Costs 97
- Strain Gage Circuits From A Bottle..... 102
- *Right Plant Site and Design Can Save Money.. 104
- Casting Cleaning Cost Blasted 107
- *Automatic Controls Improve Furnace Operation 108
- *Tool-Crib Control System Speeds Service..... 112
- Technical Briefs 116

MARKETS & PRICES

- *The Iron Age Summary—Steel Outlook..... 123
- Market Briefs 125
- *Nonferrous Markets 126
- Iron and Steel Scrap Markets 130
- Comparison of Prices 134
- Steel Prices 136

REGULAR DEPARTMENTS

- Dear Editor 9
- Fatigue Cracks 11
- Dates to Remember 13
- Free Publications 71
- New Equipment 76

INDEX OF ADVERTISERS 160

Copyright 1953, by Chilton Co. (Inc.)

THE IRON AGE, published every Thursday by the CHILTON CO. (INC.), Chestnut & 56th Sts., Philadelphia 39, Pa. Entered as second class matter, Nov. 9, 1932, at the Post Office at Philadelphia under the act of March 3, 1879. \$8 yearly in United States, its territories and Canada; other Western Hemisphere Countries, \$15, other Foreign Countries, \$25 per year. Single copies, 35c. Annual Review and Metal Industry Facts Issue, \$2.00. Cables: "Ironage." N. Y.

Address mail to 100 E. 42 St., N. Y. 17, N. Y.

DIGEST of

NEWS DEVELOPMENTS

BALANCE STEEL MELTING AND FINISHING — P. 39

Current expansion program will bring steel industry finishing facilities into closer balance with ingot producing capacity. But historic excess of finishing capacity will be maintained. Most producers have planned their expansions to give better integration. List new finishing capacity installed.

LOST WAX CASTERS ENJOYING GROWING PAINS—P. 43

Precision Metalsmiths, Cleveland investment casting company, finds growing pains pleasant and profitable. Sales volume has increased 200 times in the past 7 years. Customer education was the biggest problem at the start. The firm uses a shirtsleeves approach, stresses teamwork and common sense.

IRON POWDER MAKERS TRACE STEADY GROWTH—P. 45

Production capacity is higher than sales but that doesn't embarrass iron powder producers. They'll triple facilities by early this summer. Domestic shipments in first quarter double 1952 average. Imports are higher, too, but they're due to hit a skid when huge new capacity comes in soon.

DIVERSIFICATION SMOOTHS OUT THE SALES DIPS—P. 47

By starting a vigorous diversification program, a freight car builder has cushioned the ups and downs of the violently cyclical car building industry. The firm's products now range from frying pans to prefabs. Company's first quarter sales and earnings were the highest in its 17-year history.

STEEL STILL FABRICATORS' TOP PROBLEM — P. 51

Steel fabrication and construction business is still riding the boom crest—with nothing in sight to cause alarm. But nearly everyone in the business says he could do more if he could get the steel. Building pattern is shifting. Most expect higher structural prices. But structural expansion is lagging.

FILIBUSTER SNAGS CONTROL BILL DEBATE — P. 61

Washington authority to allocate steel, copper and aluminum for defense and AEC orders may be in for a simple 30 or 60-day extension, pending outcome of Senate-House differences over the scope of long-range controls legislation. Reason: Senate filibustering on tidelands oil has delayed controls debate.

of the Week in Metalworking

ENGINEERING & PRODUCTION

BETTER PARTS FLOW TRIMS FOUNDRY COSTS—P. 97

Modern concepts of continuous product flow guided plant layout engineers in setting up Buick's new casting cleaning plant. Belt and roller conveyers, air hoists, overhead hook and chain conveyers, rollovers and small cranes keep engine parts moving smoothly. Shot blasting cabinets clean large parts.

RIGHT PLANT SITE AND DESIGN SAVE MONEY—P. 104

Efficiency in production can be achieved with a low-cost layout by careful planning, simplicity in design and use of new architectural techniques. Use of basic principles brings the cost of a building down to \$5 to \$6 per sq ft. Communities welcome plants of good appearance.

CONTROLS IMPROVE FURNACE OPERATION—P. 108

Development of dependable automatic temperature control equipment has placed industrial furnaces on a par with other automatic machinery. Best setup is when characteristics of both furnace and controlling unit are matched. Electric furnaces are particularly well suited for fully automatic operation.

TOOL-CRIB CONTROL SYSTEM SPEEDS SERVICE—P. 112

Simple cross-filing of tool orders is the crux of a system for keeping tabs on tools. It pins down responsibility and speeds tool-crib service. System saves more than 2 hr per day of a machine operator's time. It also gives the crib attendant more time for other duties. Tool costs are cut by 35 to 50 pct.

NEXT WEEK—SPECIAL MATERIALS HANDLING ISSUE

Profit or loss in your plant may depend on how you move parts and materials. Handling expenses eat up the manufacturing dollar, add nothing to product value. Materials Handling may well be the largest single area for reduction of manufacturing costs.

Editors of The Iron Age, in a special Materials Handling Issue, bring you a series of penetrating articles on the best in materials handling methods. Here are application articles from leading metalworking plants, reflecting most recent engineering thoughts on this important problem.

MARKETS & PRICES

OIL COUNTRY GOODS STILL BIG ITEM IN '53 — P. 41

Oil country tubular goods will continue in strong demand, perhaps exceeding supply, through 1953, according to estimates by government experts. Goal is 47,000 new wells, but the industry figures that the planned output of 2,700,000 tons of oil country steel will provide for only 37,000. Salvage will help.

WAREHOUSE VARIES STOCK, BUILDS BUSINESS—P. 42

Diversification of inventory may be your answer to heightened competition and shaved profit margins. A. R. Purdy Co. added stainless steel and aluminum after World War II—and today find that these total half its business. So the firm is now first in the East to stock magnesium.

AUTO SALES STAY HIGH DESPITE FORECASTS — P. 56

The gloom boys who were predicting a slump in the auto market have been proved wrong again. March, traditionally a sluggish month saleswise, busted records, looks like the first 500,000 car month since December, 1950. Dealer inventories are at a 2-year peak, but new car demand exceeds supply.

CIVILIAN ORDERS FLOOD, TOOL DIE SHOPS — P. 67

Non-defense orders in tool and die shops soar from 20 pct to 60 pct ratio in 6 weeks. Strongest demand is from automotive, appliance and business machine manufacturers. In some areas defense orders account for less than 25 pct of business. New machine tool orders continue to mount, backlogs drop slightly.

MORE STEEL FIRMS BOOST THEIR PRICES — P. 123

Steel consumers are being informed of additional price boots by producers. Several companies have followed Republic's lead in raising extras on carbon bars. And Colorado Fuel & Iron became the first producer to raise base prices. It raised base prices on rails \$6 a ton and on track accessories \$3 a ton.

GIVE GREEN LIGHT TO ALUMINUM STOCKPILING—P. 126

Washington has overruled industry objections to resumption of aluminum stockpiling—it'll start during the current quarter. No quantities were named. General Services Administration is negotiating with third round producers. Magnesium cutback will end production at all government plants but Velasco, Tex.



WITH
AJAX-NORTHROP
INDUCTION
HEAT
 FOR
Forgings

Ajax-Northrup induction heat works so fast there's no time for scale to form. This not only saves steel, but gives longer die life, closer tolerances, a smoother finish and fewer rejects. This all adds up to steel saving—as much as 20% for some work.

Ajax-Northrup heaters are available to heat all or any part of a billet, with precise temperature and gradient control, and with any desired type of automatic timing and handling devices. They fit right into your production line, take up little floor space, are clean, quiet, and easy to live with.

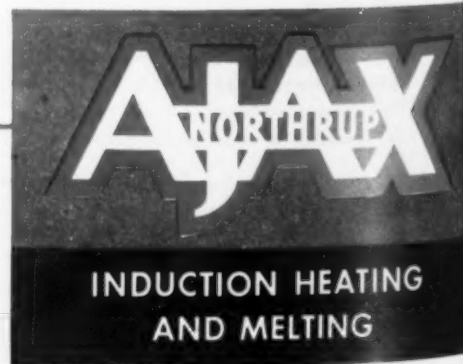
Our 37 years of induction heating experience can help you produce better forgings, cut costs, and save steel. Write us today.

Since 1916

AJAX ELECTROTHERMIC CORPORATION
 Ajax Park, Trenton 5, New Jersey

Associated Companies

AJAX ELECTROMETALLURGICAL CORP.
 AJAX ELECTRIC FURNACE CORPORATION
 AJAX ELECTRIC COMPANY, INC.
 AJAX ENGINEERING CORPORATION



Material,
 Office, 10
 GEOR
 TOM
 Managing
 Technical
 News-Mari
 East. Tech
 Machinery
 East. New
 Associate
 J. Win
 Olson, G.
 Detroit: A
 Regional
 Chicago: R.
 M. Lott, C.
 burgh; T.
 H. Baker,
 Washington
 Press, M.
 Responder
 H. Levent
 Louis;
 McDowell
 Toronto;
 Mend; C.
 Boston,
 C
 Direc
 Product
 Director
 Circulat
 Promotio
 Ast. Dir
 REGIO
 Chicago
 1 N. L
 Clevelan
 1016 N
 Columbi
 Lefeq
 Detroit
 103 Pa
 Los Ang
 2420 C
 New Yo
 100 E.
 Philadel
 56th &
 Pittsbu
 1502
 W. Har
 62 Lo
 OT
 San Fra
 Washing
 Circular
 Scott,
 One of
 Publish
 out 6
 OF
 JO
 Vice-Pr
 M. Felt
 Duffy,
 John B
 T. Har
 Campb
 lands,
 Geor
 15
 Indus
 and th

THE IRON AGE

Material, Advertising and Circulation
 Offices, 100 E. 42nd St., N. Y. 17, N. Y.
 Murray Hill 5-8600

GEORGE T. HOOK, Publisher
 TOM C. CAMPBELL, Editor

EDITORIAL STAFF

Managing Editor: George F. Sullivan
 Technical Editor: Darwyn I. Brown
 News-Markets Editor: Wm. V. Packard
 Asst. Technical Editor: W. G. Patton
 Machinery Editor: E. C. Beaudet
 Asst. News Editor: Theodore Metaxas
 Associate Editors: H. W. Van Camp,
 J. J. Winters, R. L. Hatschek, W. B.
 Olson, G. G. Carr, E. C. Kellogg, J. J.
 Olson, Art Director: Carl Germinaro;
 Regional Editors: K. W. Bennett, Chi-
 cago; R. D. Raddant, Detroit; Robert
 W. Lutz, Cleveland; J. B. Delaney, Pitts-
 burgh; T. M. Rohan, San Francisco; G.
 E. Ester, A. K. Rannels, R. M. Stroupe,
 Washington; Editorial Assistants: L.
 Bass, M. Perrone, C. M. Markart; Cor-
 respondents: F. L. Allen, Birmingham;
 M. Lavanson, Boston; R. M. Edmonds,
 St. Louis; James Douglas, Seattle; J. R.
 McDowell, Los Angeles; F. Sandersen,
 Toronto; F. H. Harley, London, En-
 gland; Chilton Editorial Board: Paul
 Watson, Washington representative.

BUSINESS STAFF

CHARLES R. LIPPOLD

Director of Advertising Sales

Production Manager: B. H. Hayes
 Director of Research: Oliver Johnson
 Circulation Mgr.: William M. Coffey
 Promotion Manager: James A. Crites
 Asst. Dir. of Research: Wm. Laimbeer

REGIONAL BUSINESS MANAGERS

Chicago 2: S. J. Smith, T. H. Barry
 11 N. LaSalle St. Franklin 2-0203
 Cleveland 14: Robert W. Watts
 1016 National City Bank Bldg.
 Main 1-2263
 Columbus 15, Ohio: Harry G. Mumm
 LeVeque-Lincoln Tower Main 3764
 Detroit 2: Pelrice Lewis
 103 Pallister Ave. Trinity 1-3120
 Los Angeles 28: R. Raymond Kay
 2420 Chermoya Ave. Granita 0741
 New York 17: C. H. Ober, C. T. Post
 100 E. 42nd St. Murray Hill 5-8600
 Philadelphia 39: B. L. Herman
 5406 S. Chestnut Sts. Granita 4-5600
 Pittsburgh 23: J. M. Spackman
 1502 Park Bldg. Atlantic 1-1831
 W. Hartford 7: Paul Bachman
 62 LaSalle Rd. Hartford 32-0486

OTHER EDITORIAL OFFICES

San Francisco 11: 24 California St.
 Washington 4: National Press Bldg.
 Circulation Representatives: Thomas
 Scott, James Richardson.
 One of the Publications Owned and
 Published by Chilton Co., Inc., Chest-
 nut & 54th Sts., Philadelphia 39, Pa.

OFFICERS AND DIRECTORS

JOS. S. MILDRETH, President
 Vice-Presidents: Everit B. Terhune, P.
 M. Fahrendorf, G. C. Buzby, Harry V.
 Duffy, William H. Vallar, Treasurer;
 John Blair Moffett, Secretary; George
 T. Hook, Maurice E. Cox, Tom C.
 Campbell, Frank P. Tighe, L. V. Row-
 lands, Robert E. McKenna, Directors.
 George Malawinkie, Asst. Treasurer.

Indexed in the Industrial Arts Index
 and the Engineering Index.



Society of
 Business Magazine
 Editors



Controlled
 Circulation
 Audit



National
 Business
 Publications

Editorial

The Iron Age

FOUNDED 1855

Begin At Home

THE practice of some business firms of sending their key execu-
 tives "back to school" is growing. These training periods—on
 the campus and in the classroom—feature executive behavior, sales
 techniques, personnel problems and human relations.

People who have attended these courses return to their jobs
 enthusiastic over the benefits gained. In today's world the complexity
 of an executive's job has mushroomed. Firms who pay for this adult
 education feel they get value received—and more.

Men find that it is good to meet others with similar problems, to
 do homework on a scheduled basis, to be quizzed where their rank
 doesn't count, to see that trees grow, flowers bloom and a workhorse
 is not the whole answer to life.

Another side feature of this executive training is the "bull ses-
 sion." Men from different industries find that their problems are
 pretty much the same. Exchange of ideas takes place and more experi-
 ence is absorbed.

There is another way—radical to some—to train key people who
 are slated for top executive jobs. They can have extensive training
 right at home. This requires humility, self-control, human under-
 standing and a "learning frame of mind." With these characteristics
 your key men can be trained quickly, efficiently and inexpensively.

Set up a program so that your key people will have 3 to 6 weeks
 "on the job training" in every major function of your company. Let
 them be workmen with the chance to see how a problem emerges, how
 it is met and how it is solved. The superintendent or the department
 head will cooperate if the trainee observes and listens. If he tries to
 take over, the experiment will be a failure.

This experiment should not be elaborate, detailed to death or
 regarded as a cure-all. It will pay off if a sincere and objective
 approach is used.

After several weeks of "studying at home" on various jobs or in
 different departments your future president will have a broader out-
 look, a deeper understanding and less chance of feeling that he "knows
 it all."

Tom Campbell

Editor

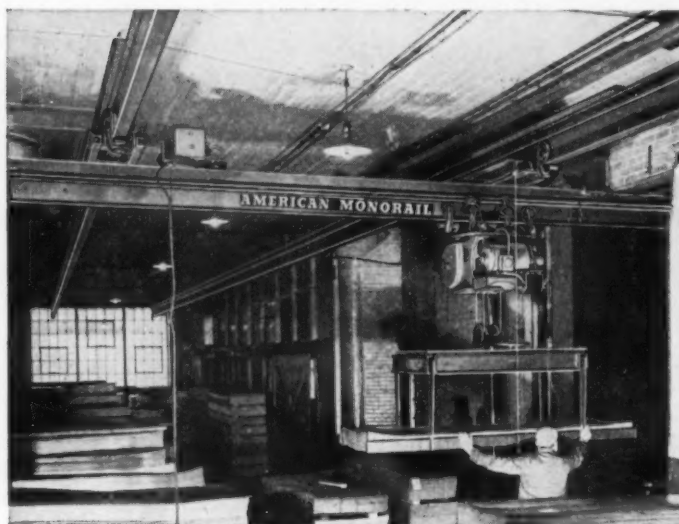
AMERICAN MONORAIL

- INCREASES PLANT CAPACITY AND PRODUCTION
- REDUCES HANDLING COSTS, DAMAGE AND LOSS

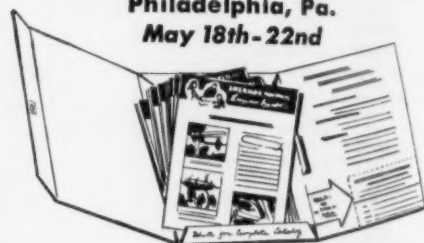
American MonoRail Engineers can show you how to get more profitable production out of your plant by systematizing material handling. Let them show you how to convert lost ceiling space to profit—how to eliminate obstructive storage around ma-

chines—lessen worker fatigue—reduce heavy load accidents—stop damage to product in motion.

Bring us your handling problems—American MonoRail can provide the equipment best suited to your needs.



See our booth at the
**5th National
Materials Handling Exposition**
Philadelphia, Pa.
May 18th-22nd



Send for New Case Study File

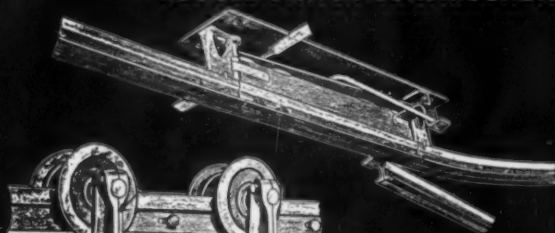
This brand new case study file contains the first of a continuing series of case studies covering many successful American MonoRail installations. Send today for original file. Future studies will reach you as published.

THE AMERICAN MONORAIL COMPANY

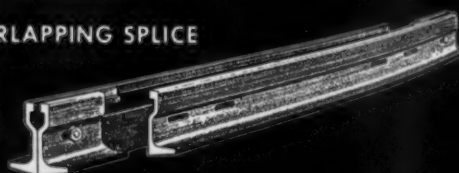
13103 ATHENS AVENUE

CLEVELAND 7, OHIO

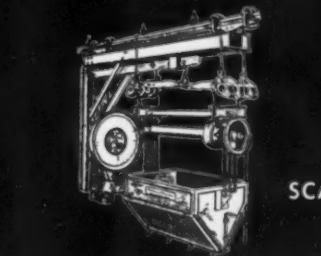
RUGGED SWITCH CONSTRUCTION



OVERLAPPING SPLICE



TWO PIECE FORGED YOKES



SCALE HOIST CARRIER



FREE MOVING CRANES

Dear Editor:

Letters from readers

Testimonial

Sir:

We are grateful for your considerate cooperation in providing us with a number of reprints from THE IRON AGE which we have been requesting recently.

Our continuing desire to obtain such reprints is perhaps the best testimonial which we can offer as an indication of the value and applicability of your fine magazine to our work.

H. JACOBSON

Singmaster & Broyer
New York

New Magnetic Material

Sir:

On p. 71 of the Apr. 9 issue you mention the 16 pct aluminum and 84 pct iron alloy worked out by the Naval Ordnance Laboratory. May we have further information on this?

M. W. OFFINGER

General Electric Co.
Schenectady

We will publish an article in May on the new "soft" magnetic material composed of noncritical metals.—Ed.

Financial Analysis

Sir:

We are interested in securing 25 copies of THE IRON AGE Financial Analysis of the Steel Industry, 1952-1951, which appeared in your Apr. 9 issue.

R. A. CURL
Sales Promotion Mgr.

Youngstown Sheet & Tube Co.
Youngstown

Sir:

If available, please mail me three copies of your Financial Analysis which appeared in the Apr. 9 issue.

C. F. STONE
Chairman of the Board

Atlantic Steel Co.
Atlanta

Iron Piston Rings

Sir:

On the Newsfront page of the Apr. 16 issue there is an item dealing with the wear resistance of ductile iron piston rings. It would appear that a European manufacturer has been making a considerable study of the use of nodular iron for piston rings and is experiencing some difficulty in overcoming excessive wear as compared to standard steel rings.

We manufacture and distribute a unique steel hardening compound under the registered trade name Hard-N-Tuff, which has been found to be effective when used on ductile iron

objects. The carburizing and nitriding action of our compound yields an extremely hard, dense surface which is highly resistant to friction and abrasion. It is quite possible that it would be of interest to the manufacturer referred to in your item.

E. C. DOEBENER

Director of Sales
Doughty Laboratories, Inc.
New York

The European manufacturer making this study is Rolf F. Goetze, General Manager, Goetzwerke A. G., Burscheid B. Köln, Germany.—Ed.

Plastic Extruders

Sir:

Would it be possible for us to obtain about 10 to 15 copies of the article entitled "Plastics: Machinery Market Booms, Extruders and Auxiliary Equipment," which appeared on p. 142 of the Apr. 9 issue.

E. R. ROUNTREE

Sales Manager
Industrial Research Laboratories
Div. of Honolulu Oil Corp.
Los Angeles

Long Glove Life

Sir:

With reference to the Glove Over-Kote process mentioned in the article "Worn Plastic-Coated Gloves Can Be Reclaimed" in your Mar. 5 issue, does the company have a representative in Dallas? Is it in a position to render this service to users of rubber gloves?

E. H. YETTER

Time Study Engineer
Dallas Iron & Wire Works, Inc.
Dallas

You can get all your questions answered by writing to the U. S. Industrial Glove Corp., 9350 Rose Lawn, Detroit 4, Mich.

House Organs Valuable

Sir:

I would appreciate receiving three or four tear sheets of the article "House Organs: Liked, Believed. Read," which appeared on p. 58 of the Apr. 16 issue.

W. T. SULLIVAN

Advertising Manager
Heyl & Patterson, Inc.
Pittsburgh

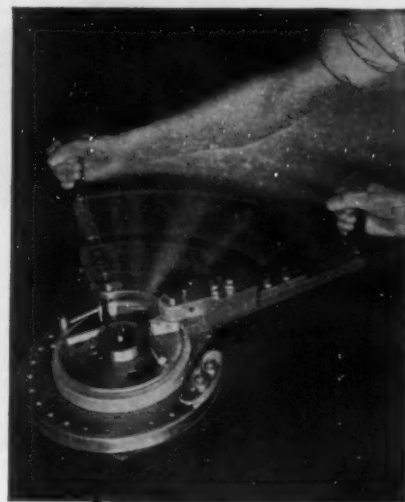
More Diecastings

Sir:

If possible, we would like to obtain a set of tear sheets of the article published in your Jan. 8 issue entitled "How To Increase Your Diecasting Output."

R. M. SANDBERG

Vice-President
Columbia Tool Steel Co.
Chicago Heights, Ill.

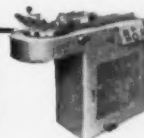


Bend a Variety of Materials

Accurately, Easily, Quickly
with a DI-ACRO* BENDER

Simple and complex bends can be formed and duplicated in many ductile materials with a versatile Di-Acro Bender. Bending capacity of the five hand operated models ranges from 1/16" wire to 1" round mild steel bar. Many accessories are available for bending various materials and shapes. The Di-Acro Bender can be delivered completely tooled for most forming requirements in solid materials and tubing.

*Pronounced Die-ack-ro



DI-ACRO HYDRA-POWER BENDER

A universal hydraulically operated bending machine that is equally as flexible as hand operated machine. Di-Acro Hydra-Power Benders are especially designed for those long runs and heavy bending operations which are impractical for manually operated equipment.



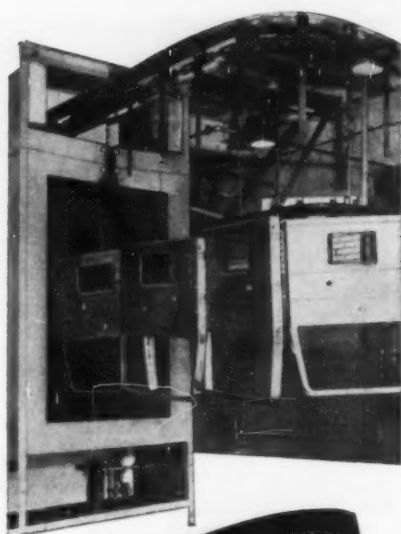
Creators of
"DIE-LESS
DUPLICATING"

WANT MORE INFORMATION?
Send for New 32-Page Catalog

Gives complete details on hand and power operated Di-Acro Benders, Brakes, Notchers, Punch Presses, Rod Parters, Rollers and Shears. Send for your copy today—there's no obligation.

O'NEIL-IRWIN
MFG. CO.
302 8th Avenue
Lake City, Minn.

di-acro
PRECISION
METALWORKING
MACHINES



**METALWASH
AT AUTOCAR**

Illustration shows cab doors for Autocar trucks being cleaned, phosphate coated, and dried.

This METALWASH phosphate coating machine provides an ideal surface for a lasting paint finish on truck chassis and sheet metal parts.

Cleaning and phosphating are uniform since the cycle is automatically controlled. Continuous operation, built around the conveyor line, eliminates material handling problems.

Metalwash Finishing Engineer, published quarterly, is available on request to engineers and executives to whom cleaning and finishing are operations of interest.

Write on your company letterhead for your free copy.

METALWASH
MACHINERY CORPORATION

920 North Ave., Elizabeth 4, N. J.
Representatives in principal cities

Fatigue Cracks

by William M. Coffey

The Big Story

There's always a story behind the story behind the story about the articles that appear in your ffj. Here's the story behind the story behind the article entitled "What the Ferrous Metallurgist Should Know About Titanium," by R. I. Jaffee, that appeared April 2nd. Here follows a letter, in a light vein, from Technical Editor Darwyn I. Brown to Mr. Jaffee on the subject of Mr. Jaffee's original manuscript:

Dear Mr. Jaffee:

Last Sunday evening right after I polish off the gold plate special aboard the Commadore to Chicago, I suffer an acute case of indigestion. For me this is unusual indeed. My stomach is known far and wide as one immune from such ailments, and various and sundry characters accuse me of lining it with Stellite or such other all-resisting materials. The cause of my sudden and extraordinary attack I trace directly to you, although I am sure you do not do this to me on purpose, as you are in everyone's book a gentleman and a scholar.

The reason I trace my condition to you goes something as follows: I take your manuscript with me on the trip, as I wish to edit it in person. After dinner I go back to my bedroom and start on page one to make a few minor changes, and I am following your usual clear, concise copy easily, as you always make even the technically difficult passages so easy to understand. I am revelling in my work as I go on thru pages two and three.

I revel because at long last I start to understand some of the very puzzling differences between the irons and the titaniums, and although I am a strong rooter for the irons all my life, the titaniums are coming along strong in the stretch, so I root occasionally for them too, but do not always understand their system.

In fact, I am puzzled often by the titaniums, as they so often play exactly opposite to how the irons play, which hinders me making book on them as I do the irons. However, as I edit your piece all these things are unravelling and becoming crystal-clear . . . and then, out of blue, I get it!

Right on the top of page four it happens. I manage to push the porter button on the wall as I double up and am writhing in pain. The porter is not much help, as his first-aid kit only covers cuts and bruises. The conductors offer me sympathy by saying that at my age I should know better than to eat on a train, as they can eat for nothing but don't, as the odds are 9 to 2 they get just what I get.

I point to your manuscript and shake my head against blaming the NYC cooks, but they say no they won't accept any other rules in arbitrating my troubles, and they get out their own rule books and thumb thru all sections. After holding count over me for 30 long minutes they leave saying I will have to fill out a special grievance form, as the point I make is not covered even in miscellaneous.

But to get to the point, I am not yet back on the ball although I am sitting up now. If you can hasten your reply I believe it will help. I need help quick, as I have lots of trouble convincing Blue Cross they should stake me this time. If your table at the top of page four just after we quench the titaniums alpha and beta from above the critical is correct as written—just send some flowers. If the columns are transposed wire collect, as I have much to do and want to finish your article before some one changes the rules for the titaniums, especially that alpha character who no one should let in to start with.

Sincerely,
D. I. BROWN,
Tech. Editor.

Puzzlers

Les Nelson, John Alden and Richard C. Cooper can be added to the winners of the cow and rope puzzle. First correct answers to the wine glass puzzle have come from Howard Smith, Professor O'Cobhthaidh, Owen Barker and Mr. Rice. Answer: .810 inches is the diameter of the ball bearing.

New Puzzle

There are 12 marbles, 11 of which are of identical weight, but the twelfth does not weigh the same. In three weighings on a simple balance find the odd marble and determine whether it is lighter or heavier than the others.

Dates to Remember

Meetings

May

NON-FERROUS FOUNDERS' SOCIETY, INC.—Annual meeting, May 4, Chicago. Society headquarters are at 192 N. Clark St., Chicago.

CENTRAL FABRICATORS ASSN.—Annual meeting, May 4-5, Skirvin Hotel, Oklahoma. Association headquarters are at 53 W. Jackson Blvd. Chicago.

COMPRESSED AIR & GAS INSTITUTE—Spring meeting, May 4-6, King & Prince Hotel, St. Simons Island, Ga. Institute headquarters are at 122 E. 42nd St., New York.

EXPOSITIONS

MATERIALS HANDLING SHOW—May 18-22, Philadelphia.

NATIONAL METAL SHOW—Oct. 19-23, Cleveland.

AMERICAN FOUNDRYMEN'S SOCIETY—Annual meeting, May 4-8, Chicago. Society headquarters are at 616 S. Michigan Ave., Chicago.

INDUSTRIAL FASTENERS INSTITUTE—Annual meeting, May 6-8, Westchester Country Club, Rye, N. Y. Institute headquarters are at 3648 Euclid Ave., Cleveland.

NATIONAL WELDING SUPPLY ASSN.—Annual convention, May 11-13, Gibson Hotel, Cincinnati. Association headquarters are at 1900 Arch St., Philadelphia.

RAIL STEEL BAR ASSN.—Annual meeting, May 11-13, Greenbrier Hotel, White Sulphur Springs, W. Va. Association headquarters are at 38 S. Dearborn St., Chicago.

AMERICAN MINING CONGRESS—Coal Convention and Exposition, May 11-14, Public Auditorium, Cleveland. Headquarters are at 1200 18th St., Washington.

THE NATIONAL ASSN. OF SHEET METAL DISTRIBUTORS—Spring meeting, May 14-15, Deshler-Wallick Hotel, Columbus, Ohio. Association headquarters are at 1900 Arch St., Philadelphia.

ASSN. OF IRON & STEEL ENGINEERS—Annual spring conference, May 18-19, Statler Hotel, Buffalo. Association headquarters are at 1010 Empire Bldg., Pittsburgh.

METAL TREATING INSTITUTE—Annual spring meeting, May 18-20, Shamrock Hotel, Houston, Texas. Institute headquarters are at 271 North Ave., New Rochelle, N. Y.

INDUSTRIAL FURNACE MANUFACTURERS ASSN., INC.—Annual meeting, May 18-20, The Homestead, Hot Springs, Va. Association headquarters are at 412 Fifth St., N.W., Washington.



Give fire half a chance and it will over-run you like a swarm of ants.



You must stamp it out anywhere it shows itself. In the paint locker, power plant, garage.



That calls for a battery of strategically placed KIDDE Portable Fire Extinguishers.



The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc. and its associated companies.



Get the ants out of your plants. Call your KIDDE dealer today.

Kidde

Walter Kidde & Company, Inc.

450 Main Street, Belleville 9, N. J.

Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

More Jobs Per Dollar Invested

CUTTING-OFF



LANDIS
PIPE MACHINES
do many operations
for this Texas
Company...

..... saving handling, saving labor, saving machines . . . resulting in dollars saved and dollars earned for this production plant.

Illustrations show the same 13 3/8" Landis Re-
ceding Chaser Pipe Threading and Cutting Off
Machine performing three different operations.

CUTTING OFF—Casing is cut off, cham-
fered and then reamed.

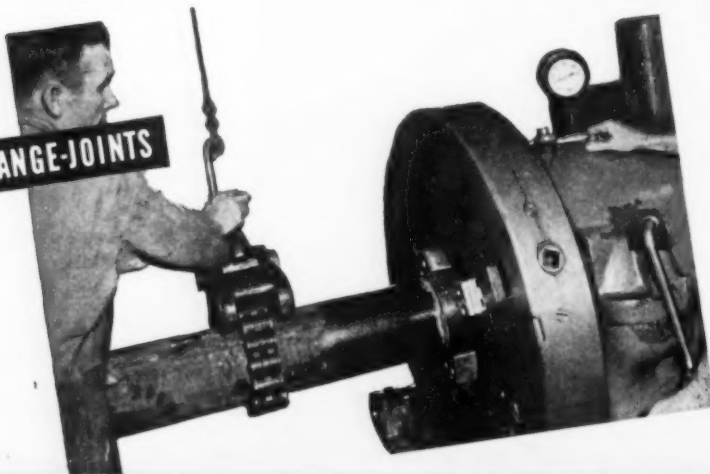
THREADING—7" casing to A.P.I. toler-
ances, using a cutting speed of 18 sur-
face feet per minute.

FLANGE MAKE-UP—Rear chuck is equip-
ped with grip for making up joints and
both the front and rear chucks are used
for breaking casing or drill pipe joints in
oil field work.

THREADING



FLANGE-JOINTS



Besides handling a variety of different oper-
ations, as shown in this case history, the Landis
Pipe Machines offer great versatility in threading
operations alone. Each size machine handles a
wide range of thread diameters. Within this
range, and using the same set of chasers, the
machine will cut threads of all diameters having
the same taper, pitch and form. In addition,
these machines are designed to cut tapered
threads to precision tolerances. Accurate taper
is assured by the sine bar feature, which causes
the chasers to be withdrawn at a rate directly
equal to the thread being produced.

Landis Pipe Threading Equipment can widen
the gap between costs and selling prices in your
plant. For complete details and specifications of
Landis Pipe Threading Machines and Landis Tan-
gential Chasers, write for Bulletin #C-77.

THE **LANDIS Machine CO.**



WAYNESBORO
PENNSYLVANIA

SEE THESE MACHINES AT OUR EXHIBIT AT THE TULSA OIL SHOW, MAY 14-23—BOOTHS 17 & 18, CALIFORNIA BUILDING

THE IRON AGE Newsfront

DETAILS OF A JOINT LIMESTONE PROJECT in Michigan's Presque Isle County are being wound up by five major steel producers with capacity on the Great Lakes. Production may start in 1954. Mills are assured a virtually unlimited reserve of high quality stone.

OUR AIRCRAFT TOLERANCE REQUIREMENTS MAY BE TOO TIGHT, Air Force studies of Russian MIG's indicate. Since wider tolerances found in Red jets does not hamper performance, U. S. could build more planes cheaper and faster by easing tolerance limits. Some results of Air Force studies may be released to industry soon.

A NEW STARTING DEVICE for diesel and marine engines features hydraulic accumulators as the power source.

WASHINGTON WON'T WITHDRAW FROM METALS AND MINERALS MARKETS during the next fiscal year—despite rumors. The \$225,000,000 requested by the White House and eliminated by the House Appropriations Committee, will be partially restored by the Senate. There's talk now of resuming copper purchases suspended 2 weeks ago in a move to drive the price down.

FIRST COMMERCIAL ORDER FOR COLD EXTRUDED PARTS is a torsion tube used in a tandem axle assembly. Strength of 96,000 psi is obtained in forming. By cold extruding the part, hardening, grinding and brazing formerly required are eliminated.

UNITED STATES FOSSIL FUEL SUPPLIES WILL BE ADEQUATE even though consumption is expected to double by 1975, experts believe. They estimate known U. S. fuel reserves at 80 billion barrels.

COMBINATIONS OF RARE EARTHS AND BORON may soon replace nickel in some high strength steels for ordnance use.

MACHINE TOOLS ARE NOW BEING CONTROLLED BY TELEPHONE EQUIPMENT. The rotating selector switch, a telephone industry standby, is used to control industrial and computing machines. Trend to automation insures application of this device to machine tools. It's been used on radial drills, shell centering machines.

MAGNESIUM SHEET, BAR, PIPE AND TUBING will be available from warehouse stocks on the East Coast next month.

SOME STEEL CONSUMERS WOULD WILLINGLY PAY HIGHER PRICES if this would encourage expansion. Assurance of an adequate supply would more than compensate for higher cost. Uncertainty of supply carries the threat of production cutbacks, forces consumers to pay premium prices to supplement receipts from normal sources.

PRACTICALLY ALL BUBBLES IN VITREOUS ENAMEL STEEL COATINGS stem from impurities in the clay addition, recent research has found. These impurities are often organic matter adsorbed on the clay particles. Principal gases evolved are CO, CO₂, and H₂, stemming from interaction of impurities, dissolved water, hot iron base.



Like the right size shirt
CMP
THINSTEEL
TRADE MARK
is tailored to your need



Buying steel is very much like buying a shirt—you prefer to buy the steel or the shirt that EXACTLY fits your requirements. True, any item made to fit a particular need may cost a little more than a product offered for all-purpose usage; but the first cost, particularly the "first steel cost", may be relatively unimportant. The end-product cost is the important consideration. If cold rolled strip or spring steel is involved in fabrication of component parts for your end-products, and the labor cost for fabricating and assembling those component parts is an important part of your total cost, you'll want to investigate CMP strip products.

CMP strip can be made to fit the most exacting needs, whether it be in terms of close tolerances, uniformity of structure, temper, finish or physical properties. The use of specially prepared CMP strip made to the measure of a particular processing or end-product requirement is contributing to lower total costs for many manufacturers. We'll welcome the opportunity to "try CMP strip for size" in your fabricating or assembly operations. Don't compromise steel quality for first steel cost.



the Cold Metal Products co.
 YOUNGSTOWN 1, OHIO

New York • Chicago • Indianapolis • Detroit • St. Louis • Los Angeles • Cleveland

LOW CARBON, HIGH CARBON (Annealed or Tempered) STAINLESS AND ALLOY GRADES, ELECTRO ZINC COATED ARE AVAILABLE FROM:

THE COLD METAL PRODUCTS CO. of CALIFORNIA, 6600 McKinley Avenue, Los Angeles

Phone: Pleasant 3-1291

THE KENILWORTH STEEL CO., 750 Boulevard, Kenilworth, New Jersey

Phones: N. Y., COurtlandt 7-2427; N. J., UNionville 2-6900

PRECISION STEEL WAREHOUSE, INC., 4425 W. Kinzie, Chicago • Phone: COlumbus 1-2700

STEEL: Balance Melting and Finishing

Expansion brings steel industry melting and finishing capacity into better balance . . . But more spent on basic facilities . . . Some imbalance was inevitable—By J. B. Delaney.

A question often asked but virtually impossible to answer satisfactorily is whether the steel industry's 1950-1953 expansion program has brought about a better balance between ingot capacity and finishing capacity.

General consensus is that at the end of this year there will be a closer relationship between the two. But chances are the industry's historic policy of more finishing than melting capacity will be maintained.

Can't Be Helped

Relationships between steelmaking capacity and steel finishing capacity are constantly shifting within companies and areas as additional new facilities are completed. This has resulted in temporary imbalance with converters sometimes running in circles trying to locate rolling space.

Such imbalance is bound to occur during expansion. New facilities, no matter how carefully scheduled, can not be brought into production gradually at just the right time so that they mesh perfectly with each other and with existing capacity.

Gain Flexibility

Most steel companies have planned their expansion carefully with an eye to better integration of their facilities. This they hope will pay off in better balance of capacity and operations, as well as the new capacity itself.

Steel producers feel that an excess of finishing capacity gives them greater flexibility in meeting fluctuations in product demand. Also they feel it is economically sound because most profit is made in finished steel products.

On the basis of Certificates of

Necessity issued, in terms of dollars, basic steel plant expansion has an edge over finishing mill additions and modernization—\$1.6 billion compared with \$1.3 billion. A breakdown of the basic steel plant certificates shows that of the total, \$577 million is being spent for blast furnaces, \$579 million for steelmaking, \$363 million for semi-finishing and \$91 million for utility and general plant.

The "semi-finishing" category, while listed under "basic steel plant," adds nothing to melting capacity since it includes slabbing-blooming mills, soaking pits, slab heating furnaces, and similar equipment in the twilight zone between melting and finishing. But without ample capacity here, increased ingot capacity would be meaningless.

National Production Authority



INGOT being lowered into new Amsler-Morton improved soaking pit before rolling.

and Defense Production Administration estimated last January that ingot capacity as of Jan. 1, 1954, assuming that contemplated expansions are carried through, will be over 124 million tons—a 25 pct increase over capacity on Jan. 1, 1950. But this estimate was made before U. S. Steel Corp. shut down its million-ton No. 3 openhearth shop at Homestead early this month. Only part of this loss can be made up by increased production from other melt shops at Homestead—an increase made possible largely by greater availability of hot metal.

Furnish Own Steel

Any improvement in the balance between ingot and finishing capacities probably would be more apparent on a company-by-company basis than from an industry-wide viewpoint. Probability is that individual producers will soon be better able to keep finishing mills running at top speed with their own steel in time of strong demand. This would mean less dependence on costly conversion arrangements.

Potentialities of modern finishing mills indicate that conversion probably will always be a factor in a tight market if only on the basis of semi-finished imported steel.

Complete list of new finishing facilities installed 1950-52 on next page.

The DPA-NPA survey showed that the steel industry is spending more money on sheet, strip and black plate finishing facilities than on any other product. The breakdown:

Sheet, strip and black plate \$714 million; pipe and tubing \$268 million; bars \$103 million; tin mill products (coated) \$69 million; rods, wire and wire products \$41 million; shapes and piling \$35 million; plates \$23 million; forgings \$7 million; rails and accessories \$3 million, and castings \$2 million.

Steel Mill Finishing Facilities Installed in 1950 to 1952

As Reported to
The Iron Age

Semi-Finishing
Facilities Omitted

1950 NEW

Allegheny Ludlum Steel Corp. 28 x 42-in. 2-high skin pass mill.
Bethlehem Steel Co. 18, 16, 12-in. cross-country bar mill; 25 and 49 x 79-in. hot strip mill.
Columbia-Geneva Steel Div. 21 and 50 x 60-in. 4-stand 4-high tandem cold mill.
Kaiser Engineering Co. 80-in. hot strip finishing mill.
Midvale Co. 24-in. ring mill.
Northwestern Steel & Wire Co. 16, 14, 12-in. merchant and narrow strip mill.
Republic Steel Corp. 54-in. skin pass mill.
Sheffield Steel Corp. 130-in. 4-high reversing plate mill.
Thompson Wire Co. 10½ and 33 x 24-in. reversing cold mill.
Thomas Strip Div. 10½ and 26 x 24-in. tandem cold mill.
Wallace Barnes Co. 7½ and 26 x 17-in. reversing cold mill.

MODERNIZED

Armco Steel Corp. 80-in. hot strip mill.
Bethlehem Steel Co. 79-in. hot strip mill; 20 and 49 x 54-in. 4-high cold mill.
Granite City Steel Co. Tandem temper mill.
Jones & Laughlin Steel Corp. 77-in. hot strip mill; 96-in. hot strip mill.
Republic Steel Corp. 98-in. hot strip mill.
Sheffield Steel Corp. 100-in. plate mill; 10-in. rod mill; 110-in. plate mill.
Washburn Wire Co. No. 2 rod mill.
Weirton Steel Co. 68-in. hot strip mill.

1951 NEW

Allegheny Ludlum Steel Corp. Two 30-in. 4-high reversing cold mills; 56-in. 4-high reversing cold mill.
Jones & Laughlin Steel Corp. 16, 12, 10-in. rod mill; 19 and 49 x 48-in. 2-stand tandem temper pass mill.
Armco Steel Corp. Two 48-in. 4-high temper mills.
Columbia-Geneva Steel Div. 86-in. 2-high temper mill.
Detroit Steel Corp. 56-in. 3 stand tandem cold mill; 56-in. 2-high temper mill; 72-in. 2-high universal mill; 56-in. 4-stand hot mill.
Weirton Steel Co. 16-in. 4-high cold mill.
Crucible Steel Co. 56-in. 2-high temper mill.
Granite City Steel Co. 48-in. 2-high temper mill.
Empire Steel Corp. 52-in. continuous hot strip mill (partially modernized).
Ohio Knife Co. 18 x 26-in. 2-high hot mill.
Sheffield Steel Co. 12-in. 7-stand merchant mill.
U. S. Steel Corp. 21 and 53 x 48-in. 5-stand tandem cold mill.

MODERNIZED

U. S. Steel Corp. 42-in. 4-high reversing cold mill; two 20 and 48 x 84-in. temper pass mills; 20 and 48 x 54-in. temper pass mill; 80-in. hot strip mill.
Granite City Steel Co. 48-in. 4-high temper mill.
Ford Motor Co. 19 and 49 x 66-in. 3-stand tandem mill; 27½ and 56-in. 2-high temper mill; 20½ and 56 x 84-in. 4-high temper mill.
Columbia-Geneva Steel Div. 132-in. plate mill conversion to 80-in. semi-continuous hot strip mill.
Inland Steel Co. 18 and 49 x 42-in. 5-stand tandem cold mill; 36 x 44-in. 2-high hot mill.
Youngstown Sheet & Tube Co. 79-in. hot strip mill.

1952 NEW

Allegheny Ludlum Steel Corp. 56-in. hot strip mill.
Continental Steel Corp. 16, 14, 12, 10-in. rod mill.
Ford Motor Co. 21 and 53 x 66-in. 4-high cold mill.
Great Lakes Steel Corp. 20 and 53 x 93-in. 4-high skin pass mill.
Jones & Laughlin Steel Corp. 16, 12, 10-in. bar mill.
Kaiser Steel Corp. 44-in. 4-high 2-high temper mill; 44-in. 4-high 5-stand cold mill.
Latrobe Steel Co. Two 12 x 36-in. 3-high mills.
Metals & Controls Co. 6 and 24 x 18-in. 4-high mill.
Pittsburgh Steel Co. 32 x 66-in. 2-high cold mill; 66-in. hot strip mill.
Republic Steel Corp. 72-in. 4-high temper pass mill; 72-in. 4-high 4-stand tandem cold mill.
Simonds Saw & Steel Co. Two 26 x 44-in. 2-high stands.
U. S. Steel Corp. 19 and 53 x 48-in. 4-high 2-stand cold mill; 32 x 80-in. 2-high cold mill.
Crucible Steel Co. 14-in. size D mill.
Lone Star Steel Co. 4-high reversing strip mill.
Vanadium Alloys Steel Co. 22-in. bar mill.

MODERNIZED

Armco Steel Corp. 80-in. hot strip mill.
Crucible Steel Co. 24-in. bar mill.
Ford Motor Co. 66-in. 4-high hot mill.
J. A. Roebling's Sons Co. Continuous wire rod mill.
Sheffield Steel Corp. Continuous rod and merchant mill.

OIL: More Steel for More New Wells

Washington expects oil well drillers will exert good demand for pipe through 1953 . . . Steel capacity expansion will get oil takers . . . Compromise on oil well goal—By A. K. Rannels.

Government experts look for continued high demand for oil country tubular goods over the foreseeable future and possibly a tight supply throughout 1953.

They see no reason why the oil and gas well industry can't absorb all or more of the steel industry's planned productive capacity of around 2,700,000 tons of these products by 1955.

Their forecast considers a retreating government target for drilling expansion. It also recognizes that steel capacity for producing these products has expanded at a greater rate than for steel production generally.

Compromise on Goal

Last year, mobilization agencies were urging the oil and gas industry to set its drilling sights on a top rate of about 55,000 new wells annually. They will now settle for a rate of 50,000—by end of 1955.

Such a rate won't be enough to provide a "truly adequate productive capacity" from the cautious standpoint of national security, a spokesman for Petroleum Administration for Defense says.

But the 50,000 level does seem to be a "practical" compromise figure, according to PAD thinking. It would represent an increase of 25 pct over the pre-Korean rate.

A major reason for lowering the target is that the oil industry has told PAD that it is useless to expect to increase the drilling rate to more than 50,000 before end of 1955.

Strikes Delay Expansion

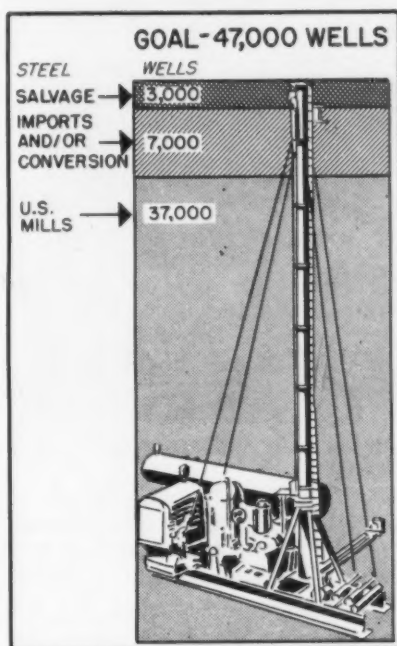
Figures compiled by the Iron & Steel Div. of National Production Authority show that output of casing, tubing, and drill pipe has increased each year since 1946, except in 1949 and again in 1952 when strikes were the hold-back.

As it looks now, the 47,000-well

figure for 1953 may be optimistic. Control officials say the drilling industry won't be out of the woods before the first quarter of 1954.

Interior Dept. is planning to continue PAD on a reduced scale, assuming that the Defense Production Act is extended in much the form asked by the White House.

But PAD won't have any power to help drillers get steel if they get



into a tight spot. Its authority will be confined to assuring adequate supplies of aviation gas, fuels and oil for the military services.

Drill 47,000 Wells?

Early this year, the steel industry told NPA it estimated oil country tubular goods production for 1953 at about: 1,896,000 tons from present facilities and about 194,000 tons from new mills coming into production this year—to total about 2,090,000 tons.

This means, say the experts, that there will be enough steel available this year from regular

mill production to permit sinking of about 37,000 new wells. Enough used steel can be pulled from dry holes and depleted wells to drill 3000 new ones.

On this basis, hope of 47,000 completions this year depends largely on whether drillers can get enough foreign and conversion steel for about 7000 completions. And if the industry is willing to pay the extra cost of more expensive steel.

Demand Will Ease

Tubular goods will be tighter during third quarter 1953, PAD estimates, despite increased mill production. Drilling is historically higher for this period. There may be spot shortages partly as result of decontrol.

But most of the pressure will be off for fourth quarter and most drillers should be able to get sufficient steel to meet normal demands, though not necessarily enough to bring any postponed operations up to date.

According to estimates in the NPA survey in late February, oil goods capacity for next year will exceed that of 1950 by 50 pct with a corresponding output boost of 45 pct.

PAD figures that drillers will be able to step up operations 20 pct by end of 1954. It is further calculated that this should more than take care of presently planned mill capacity for oil country goods.

Shut Down Gasoline Plant

Interior Secretary Douglas McKay has ordered the closing down of the government-owned synthetic gasoline plant at Louisiana, Mo.

Converted from a wartime ammonia sulphate plant, it has been used since 1947 to develop ways of making gasoline from coal by hydrogenation and gas synthesis.

Something like \$75 million has been spent for operation of the plant, largely to develop and test processes on which the Germans had been working.

It is estimated that the Government will save about \$3.5 million a year by closing the plant.

WAREHOUSES: Variety Draws Customers

Firm added stainless, aluminum at war's end, finds they're half its total now . . . Carbon steel volume is up, too . . . Company first in East to stock magnesium—By R. L. Hatschek.

Need an angle to boost warehouse business? Diversification of inventory may be your answer to heightened competition and shaving of profit margins. Many warehouses that originally stocked only carbon steel are now finding ready markets for other metals as well.

An excellent case in point is provided by A. R. Purdy Co., of Lyndhurst, N. J. Seeking a way to increase both business volume and profits at the end of World War II,

firm has confidence in the future of light metals in industry—bolstered by its experience with aluminum.

Sheet, plate, bars, extrusions and tubing will be carried for the many smaller fabricators in the eastern part of the country.

Use Is Growing

No immediate killings are expected, though several customers are already on the books. But applications for magnesium are grow-



YOU NAME IT and, if it's aluminum, it's probably on display in A. R. Purdy Co.'s traveling exhibition of customers' variety of aluminum products.

the company added stainless steel to its regular inventory items. Volume increased.

Spurred on by this initial success, the warehouse added aluminum in 1947. Again volume increased—and today aluminum accounts for some 35 pct of all Purdy business with stainless steel coming to about 15 pct of the total.

Will Carry Magnesium

And now Purdy is adding another metal to its stocks—magnesium. This will make Purdy the first warehouse in the East to handle magnesium and the second in the nation. The only other is Reliance Steel Co. on the West Coast which has carried the light metal for about a year.

Why did Purdy management decide to stock a metal that has comparatively limited demand? The

ing in both number and tonnage (see THE IRON AGE, Apr. 9, p. 81) and this warehouse will be building its list of customers for the day when magnesium tonnages become substantial.

Another aspect of this diversification is that these specialty items bring in customers for standard steel products. When a buyer finds he can get something unusual that he needs from a warehouse, he very often figures he may as well buy all his supplies there.

To prove this Purdy reports that while aluminum and stainless now account for 50 pct of sales, carbon steel volume is higher than before the specialties were added.

Use New Selling Twist

But the firm doesn't rely on variety of products alone to pull in the business. An active selling

campaign with a few unique twists helps boost sales.

Most unusual gimmick is the company's aluminum trailer. Practically every square inch of the trailer's interior is covered with aluminum displays—finished products or parts made by Purdy's aluminum customers. The diversity is startling.

This trailer is taken around to any firm that requests it and the doors are thrown open to all who are interested. Idea, of course, is that someone will draw a parallel between his product and something he sees—and consider Purdy's aluminum for the job.

Give Rapid-Fire Answers

Naturally the manufacturers of aluminum products are happy to get the free ride in the trailer and are quick to supply samples.

Another innovation of this progressive-minded warehouse is its stock control board. The firm advertises that it will give accurate information on whether or not it has your needs in stock within 30 seconds—and it can.

The system is so fast that during the acute shortage period many customers wondered if they were getting a quick brush-off instead of an honest answer from Purdy's telephone salesmen.

How It Works

The system is simplicity itself. Instead of a card-file the firm has a room set aside with walls covered with inventory information.

About a dozen men with headset telephones merely glance at the proper spot on the wall when customers call in to see if Purdy has what they want. Answers come back so quickly that no one could blame a harried buyer for misinterpreting the occasional fast, "Sorry, sir, none in stock."

Also somewhat unusual is the fact that Purdy management prefers to train its own salesmen. New men start in the warehouse and as they learn, they are advanced. Reason for this procedure is that trainees don't have to unlearn bad sales practices.

LOST WAX: Growing Pains Can Be Fun

Cleveland investment casting firm boosts sales 200 times in 7 years . . . Customer education was biggest job . . . Shirt-sleeves approach keeps production, morale high—R. M. Lorz.

Production investment casting is a comparative newcomer, but the baby is growing fast. And the growing pains can be very pleasant. Take Precision Metalsmiths as a good case history.

This Cleveland firm has been in business just 7 years but sales volume has already increased 200 times. When President Robert L. Miller and four associates went into business in 1946 their firm had five employees and a capital investment totaling less than \$50,000.

Bigger & Better

Today a staff of 150 highly trained people is turning out precision castings at a rate of almost 500,000 per month. Total assets are valued at close to a half million dollars.

Company officials believe those figures will continue to go up. In the words of one pioneer, "I can't see any limit to expansion possibilities if we get some relief on the tax front."

Growth rate of this firm takes on added meaning when company officials explain that Precision Metalsmiths is not a war baby. Plans for the operation were completed long before Korea and defense business wasn't anticipated. At that time the castings firm had only 4200 sq. ft. of space.

Customers Were Wrong

During its first years of operation the Cleveland firm supplied castings for machine tools, pumps, instruments, business machines and a growing variety of products. Prosperity came, strangely enough, because the customer was usually wrong.

As President Miller explains it, "Nobody knew much about the process and we had a tough time educating engineers. They had to be shown."

Teamwork and common sense on tooling and design reversed the original trend. Today Precision Metalsmiths claims it has to keep moving to stay ahead of customers who are just beginning to exploit investment casting.

In emphasizing the common sense approach company leaders say any casting operation will fold if there are too many generals and not enough soldiers.

From the president on down employees come to work in khaki work clothes ready to go into the plant if needed. Interviewing the boss is trying because designers, engineers and production men continually scoot in and out of executive offices for quickie conferences.

Doing Something

Precision employees, now working in a new plant which covers 30,000 sq. ft., apparently are satisfied with the way the company is run. Wages are on a par with those prevailing in the foundry industry generally and turnover is low.

One worker on the floor had a

concrete explanation: he feels he is doing something because no two castings are exactly alike and "you can't help getting interested in the job."

Precision Metalsmiths didn't go into the business with defense in mind, but military output has leaped since Korea. Castings for Air Corps, Ordnance, Signal Corps and other service branches now represent about 51 pct of the firm's sales volume.

This increase has also resulted in increased production of ferrous castings. As recently as 1951 ferrous work accounted for only 12 pct of total sales. Today almost 80 pct of the firm's total output is ferrous. This minor revolution has caused some basic equipment changes.

Plan More Growth

In the early days Precision had only six nonferrous ovens. Casting process today is facilitated by a battery of 34 nonferrous and 27 high temperature units.

Precision Metalsmiths has no immediate plans for expansion. Excess profits tax and other limiting regulations are the principal obstacles. When and if these barriers are removed the Cleveland firm wants to continue its growth.

Where? President Miller and his associates get a far-away look in their eyes and answer, "California has a good climate."



HUDDLE with the boss on casting job. Left to right are: Dick Rimer, Dick Devans, Precision Metalsmith president Bob Miller and Art Conrad.



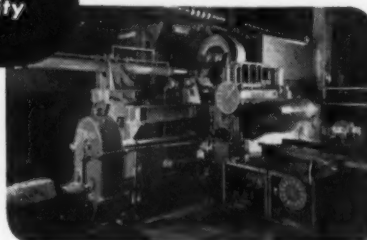
Your STEEL MILL FROM BLUE PRINT TO OPERATION

... with UNDIVIDED responsibility

FOUR-HIGH STRIP MILL
DETROIT STEEL CORPORATION
PORTSMOUTH, OHIO

Designers and Builders
Pittsburgh Engineering and
Machine Company

Newly developed Mandrel type
up-coiler (eliminates under-floor
installation)



Pittsburgh Engineering and Machine Company's years of experience in the design and building of heavy mill machinery and auxiliary equipment guarantees unexcelled performance and years of trouble-free operation.

Write Today for Complete Information



317 Farmer's Bank Bldg., Pittsburgh 22, Pa. • Plant at Glassport, Pa.

DIVISION OF PITTSBURGH STEEL FOUNDRY CO.

Expansion

Coke:

ODM asks extra coke capacity hike to balance new iron goal.

Office of Defense Mobilization has recommended that the steel industry increase its byproduct coke oven capacity by another 1.8 million net tons above previous expansion goals.

Original goal was to increase slot-type oven capacity to 84 million tons by the end of 1953. Earlier this year, mobilization officials became reconciled to the fact that end of 1954 is a more likely date.

Since that time, however, mobilization agencies have recommended that blast furnace capacity be expanded by 2 million net tons above the initial goal of 85 million tons in the interest of national security.

Balance Furnace Boost

As a result, ODM has now revised upward its expansion goal for coke in order to "balance out the program." Applications for fast tax amortization will be considered by Defense Solid Fuels Administration.

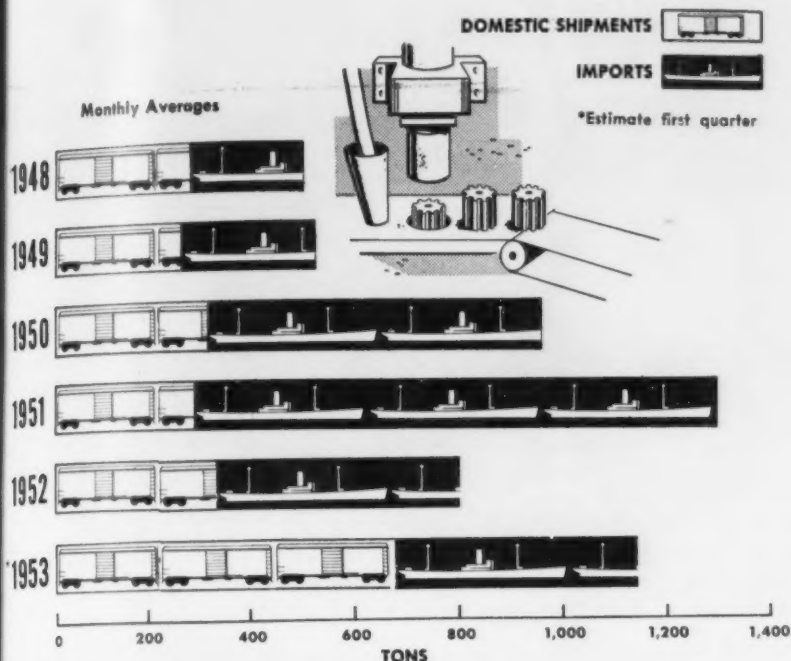
Target date for the additional coke capacity has been set for Jan. 1, 1955, although ODM is far from confident that this date will be met.

Under the revised goal, industry is called upon to boost total coke production capacity by nearly 15 million tons. Allowing for retirement and dismantling of facilities, it means that industry has actually been called upon to build closer to 19 million tons between 1950 and 1955.

Increased blast furnace goal is not the only reason for the new coke oven target. Government experts feel that anything less than an 86 million ton figure leaves too much room for slippage. This is based on projections by the Materials Policy Commission.

New capacity would be needed at a minimum rate of 3 million tons a year to offset over-age losses alone, it was figured. More than that, according to commission thinking, increasing steel demand will create coke capacity requirements of about 120 million tons by 1975.

Expansion



IRON POWDER: Trace Steady Climb

Capacity is higher than sales but iron powder makers will triple facilities by mid-year . . . Ordnance is big factor . . . Industrial demand rising . . . Quality higher—By R. M. Lorz.

The iron powder industry isn't the least bit embarrassed about being overexpanded at the moment. Although producers admit they have more capacity than business, they see a bright future.

Industry right now is doing slightly better than it did last year when sales hovered around the \$2-million mark. Capacity is expected to triple by early this summer—a sure sign of confident optimism.

Ordnance orders have figured in expansion planning but they are by no means the sole factor. Future in bearings, machine parts and industrial flame-cutting seems limitless. Emphasizing this, one producer estimates that at least 2 lb per min of iron powder is consumed in flame-cutting heavy plate.

Butter It, Too

Increasing demand from sinterings and appliance manufacturers is also being felt. Diversity of the overall demand is clearly demonstrated by "consumers" who use electrolytic iron powder to step up

the iron content of bread and various pharmaceutical products.

Total production and capacity will both be boosted very shortly when one eastern firm swings into action. The brand new plant will add some 28,000 tons to the industry's annual capacity (THE IRON AGE, Oct. 2, 1952, p. 37). Actual powder production is expected to equal the 1000-ton monthly average maintained by some of the larger producers.

Imports Will Topple

Imports, which dropped to 275 tons monthly in the first half of 1952, have climbed steadily since then. In the quarter just ended the monthly average was estimated at 500 tons. But they'll drop to practically zero when the new firm gets under way.

As far as military orders are concerned many producers feel the battle of standards is over. Ordnance has been accepting iron powder rotating bands for high velocity shells and iron powder

producers feel certain the army will soon start using them on certain types of shells. Powder bands won't displace the conventional gilding metal bands now in use but they should serve as a solid emergency backstop. Makers also state that iron powder bands will reduce corrosion and lengthen gun life.

When and if the army does decide to step up the iron powder ammunition program 90mm and 105mm shells are expected to be first in line.

More Will Qualify

Feeling that government will soon be a heavier buyer is prompted by conviction that the iron powder industry has succeeded in meeting rigid standards. About half of current production is suitable for ordnance and other military uses. And this proportion will zoom higher with the new facilities.

Job of raising quality was done by men who did some design educating and stressed the need for self discipline within the industry. When producers and potential customers gave up the idea that powder metallurgy was a cure-all the battle of standards began to subside.

On the price front producers are unanimous in agreeing there won't be any "10-cent" for quite some time. Present prices range from 12¢ to 16¢ per lb and they aren't expected to go down. Chief reason: Fast growing industry has dipped heavily into the plant investment cash drawer.

Opens New Copper Warehouse

Phelps Dodge Copper Products last week opened a 30,000 sq. ft. \$185,000 warehouse in Los Angeles adjacent to its \$6 million pipe and tube extrusion mill. This new facility will handle the 2 to 3 million lb per month output of ½ to 6 in. o.d. pipe tubing for 11 western states plus Alaska, Hawaii and the Philippines.

Fifteen-day rail and 30-day water shipments from other plants in Yonkers, N. Y., Bayway, N. J. and Ft. Wayne, Ind. will thus be cut down by the local warehouse.

Iron Ore:

Workmen forge ahead on Steep Rock, draining lake.

While a world-wide search goes on for new sources of iron ore development of the nearby Steep Rock mines rushes ahead in Canada.

Inland Steel Co. has latched onto a 99-year lease on the ore-body located only 140 miles from Port Arthur on Lake Superior. The firm feels it has secured its future in 1200 acres of land there and plans to sink \$50 million into the earth in the next 7 years.

The earth is expected to return 3 million tons of ore yearly when the area gets up to full production. Ore tests 53 pct Fe.



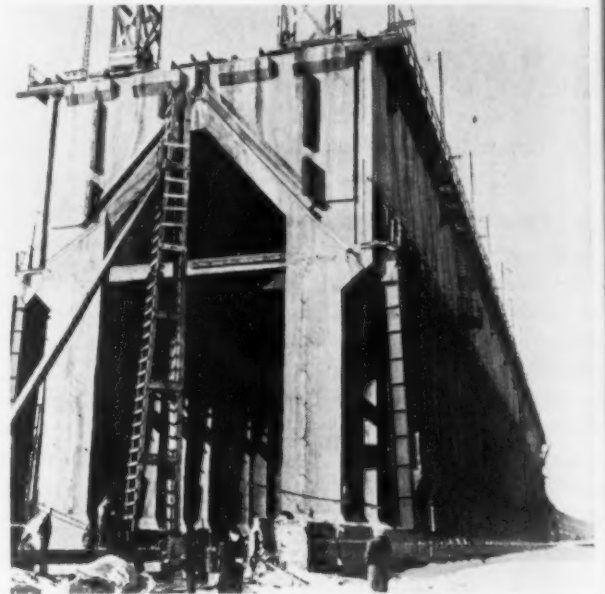
DRAINING has lowered level of Steep Rock Lake by 110 ft. Old level can be traced in background of this picture, with "Carbonite Cliff" at right.



VIEW of "B" headframe and other buildings including conveyer to Canadian National Ry. spur from Atikokan. At left, present pier end of rail ore dock at Thunder Bay, offshore of Port Arthur, Ontario. Construction will double pier length.



POPULATION of Atikokan has risen from 350 in 1950 to 3000 today, will hit 28,000 by 1959.



TWO DRILL RIG CREWS at turn of shift on the "C" orebody ice.

INDUSTRY: Put Eggs in Many Baskets

Diversification is saving a freight car builder from ups and downs of a cyclical industry . . . Firm's products range from auto parts to prefabs . . . Report top sales—By E. C. Kellogg.

Like all freight car builders, Pressed Steel Car Co. was ridden with the hot and cold flashes symptomatic of a violently cyclical industry.

There were no indications that the historic up and down pattern of the car building industry would change. Prospects were that competition would become even fiercer as the railroads began to build more and more of their own freight cars.

Start Diversification Plan

To take the zig-zags out of its sales charts, Pressed Steel started its diversification program at the end of 1949 with the purchase of Solar-Sturges Mfg. Co., Chicago.

Today the firm, through its 11 subsidiaries and divisions is manufacturing a wide variety of products ranging from frying pans to pre-fabs.

Diversification at Pressed Steel has been pushed so vigorously that last year the company was more a general manufacturer than a car builder. Of its total 1952 sales volume of \$51.3 million, 54 pct was from new product lines.

The Change Paid

For the company's stockholders diversification has been a profitable move. In a recent financial statement the company reported the highest first quarter sales (\$26.9 million) and largest earnings (\$1.1 million) in PSC's 17-year history.

Pressed Steel has been guided by only a few basic ground rules in developing its diversification plan: (1) In general stick to the steel fabricating industry which it knows (2) take over only those com-

panies that have established a good record and (3) when a new division is acquired try to expand its product line.

How It Grew

Purchase of Solar-Sturges in December, 1949, put Pressed Steel in business as a manufacturer of dairy cans, waste receptacles and cooking utensils. During 1950, PSC added a truck-trailer manufacturer, a dairy equipment producer and an auto accessory firm.

The following year it acquired the Chicago Steel Tank Co., a firm manufacturing specialty storage tanks.

Make Bold Move

Boldest move in the diversification program was made last October when PSC added its largest subsidiary, the Axelson Mfg. Co., Los Angeles, a leading manufacturer of petroleum equipment, engine lathes and aircraft parts. And in March, Pressed Steel was awarded a contract to manage and operate a large ordnance plant at Rockford, Ill.

From its diversification pro-

gram, Pressed Steel is now in a good position to cushion the shock of periodic drops in freight car demand. It has a varied product mix, manufacturing enterprises that extend across the country and a sound civilian-defense sales ratio of 3 to 1.

Will Set Record

Pressed Steel expects to do a record \$80 million business this year. Its Jahn Trailer Div. at Hegewisch, Ill., has a \$10 million backlog of military orders for low-bed trailers: its Axelson Div. has more than \$20 million worth of unfilled orders, and total backlog for whole company is around \$60 million.

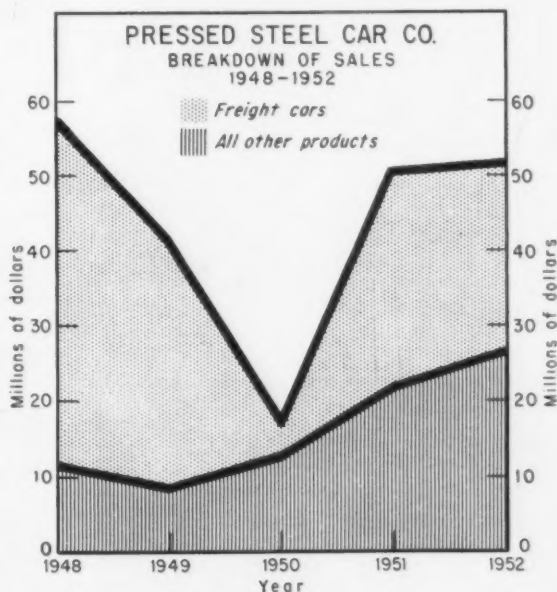
Importance of Pressed Steel's diversified products as balance for the erratic freight car business was dramatically proven in 1950 when all car builders took a beating. PSC's car sales in 1949 totaled \$32.9 million but plummeted to \$4.2 million the next year. For the same period, sales of other products rose from \$8.3 million to \$12.6 million.

In line with its policy of diversifying the products of its own subsidiaries, Chicago Steel Tank Div. is building a new plant for production of stainless steel containers. Operations are expected to begin in June or July.

At its Hegewisch plant, Pressed Steel is working on a prefabricated housing project for the Army. Called Unishelters, construction of these laminated plywood houses is based on the Unicel method PSC introduced in freight cars in 1951.

Assn. of American Railroads thumbed down the Unicel cars, but PSC finds the method is now proving itself in the prefab field.

No deals are pending right now for further expansion of the company's diversification program, but as one Pressed Steel Car executive told THE IRON AGE: "We're always considering something."

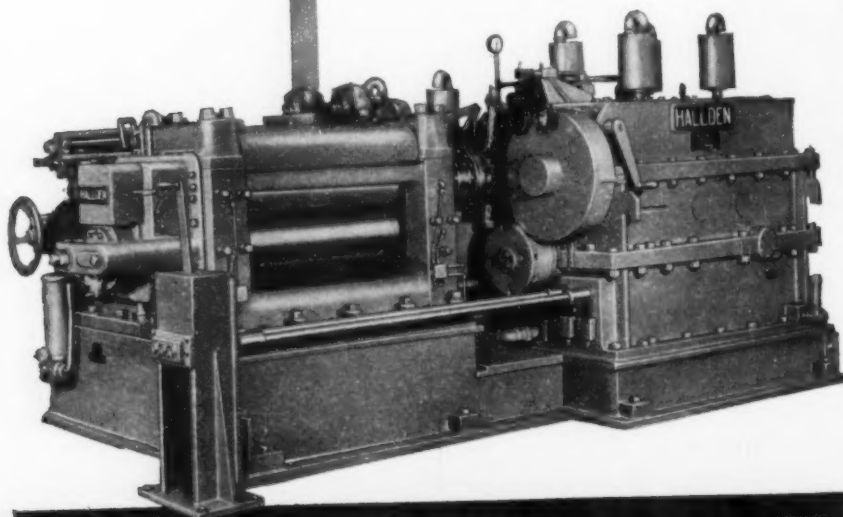


HALLDEN
Automatic Shears

flexible design...
cutting accuracy...

continuous feed...
rugged construction...

**CONSULT HALLDEN —
the shearing
specialists!**



THE HALLDEN MACHINE COMPANY
THOMASTON, CONNECTICUT

Sales Representatives

The Wean Engineering Co., Inc., Warren, O. T. E. Dodds, Pittsburgh, Pa.
W. H. A. Robertson & Co., Ltd., Bedford, England

—Manufacturing—

3-D MOVIES: More

GE selsyn output upped 300 pct to meet three-dimensional movie needs.

Current mania for three-dimensional movies has meant more business for General Electric. Since one popular method of 3-D projection requires use of two projectors running in unison, this has resulted in increased demand for GE's selsyn synchronizing devices.

Production of GE selsyns has been upped more than 300 pct, and assembly line output at the company's Fort Wayne, Ind., plant is topping 250 units per day. Officials estimate current selsyn orders will supply nearly 2000 movie theaters.

Industry Uses Them

Use of selsyns is not new. For many years they have been employed by industry for remote signalling, control and indication systems.

The General Electric 3-D projection system consists of two selsyn generators, each slightly smaller than a ¼ hp motor. One unit is linked to each projector by a short chain and sprockets.

If one projector starts moving

—Management—

Bethlehem Pays Schools for Grads

Bethlehem Steel Co. has set up a new program that will give financial assistance to 45 colleges and at the same time may result in an increase in the number of engineering students graduating each year.

Under the program, known as the Grace plan, Bethlehem will give the selected colleges \$3000 for each graduate the company picks for its training program, provided the recruit stays with Bethlehem for at least 4 months. Normally, Bethlehem selects 100 men each year for its training program.

The plan will go into effect in July and is designed as a long-range program. There are no restrictions on the use colleges may make of the payments received from Bethlehem.

More
ed 300
nsional

-dimen-
-re bus-
-e. Since
-project-
-project-
-is has
-nd for
-evice.
-ns has
-ct, and
-e com-
-ant is
-r. Off-
-yn or-
-movie

v. For
-n em-
-e sig-
-n sys-
-pro-
-o sel-
-ightly
-One
-or by
-oving

Grads

up a
-inan-
-d at
-n in-
-ring
-t.
-s the
-e the
-each
-r its
-e re-
-r at
-hle-
-for
-t in
-ong-
-re-
-may
-rom

AGE

Synch Units Needed

faster than the other, causing a difference in the timing of the pictures being shown on the screen, an abnormal current flows between the selsyns. This current works through the geared synchro-motors to slow down the fast projection motor and speed up the slower one.

The adjustment is said to be made so rapidly that the audience is unaware of the change.

At present, the majority of GE

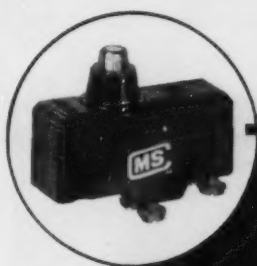


CHAINED selsyn keeps movie projector in step with its mate for 3-D motion pictures.

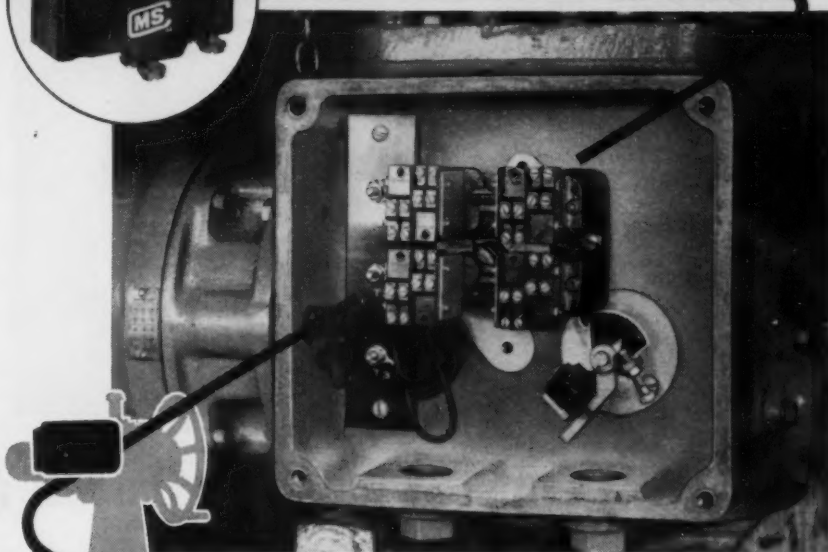
selsyns for 3-D use are being sold to motion picture equipment manufacturers and suppliers who are reselling them to exhibitors as parts of 3-D conversion kits.

Film Loading Trouble

One advantage of the selsyn method is that it eliminates the steel shaft formerly needed to connect the two projectors. This spinning metal bar used up needed space in the projection booth and made it difficult for the operator to load the film. In addition, the GE system eliminates the coupling and uncoupling of the bar formerly needed if a 3-D short were shown with a standard feature.



9 MICRO switches



Open view of LIMITORQUE valve control showing the location of nine MICRO switches used in its automatic operation.

provide flexible operation of this Philadelphia Gear Valve Control

• Fast, snap-action MICRO switches provide a flexibility of control hitherto unknown in the operation of Limitorque Automatic Controls for the operation of valves on steam, air, gas, water and oil lines.

Nine MICRO switches are used in the 4-train gear limit assembly. Eight switches permit various adjustments in the gear train to open and close different circuits with rotations of the drive shaft. The ninth switch cuts off the motor when the design torque load is exceeded.

Engineers of Philadelphia Gear Works, makers of Limitorque Controls, chose MICRO switches for this use because of:

- 1 High electrical capacity.
- 2 Extremely rapid make-and-break action.
- 3 Provision of more electrical circuits.
- 4 Small size to aid compact design.

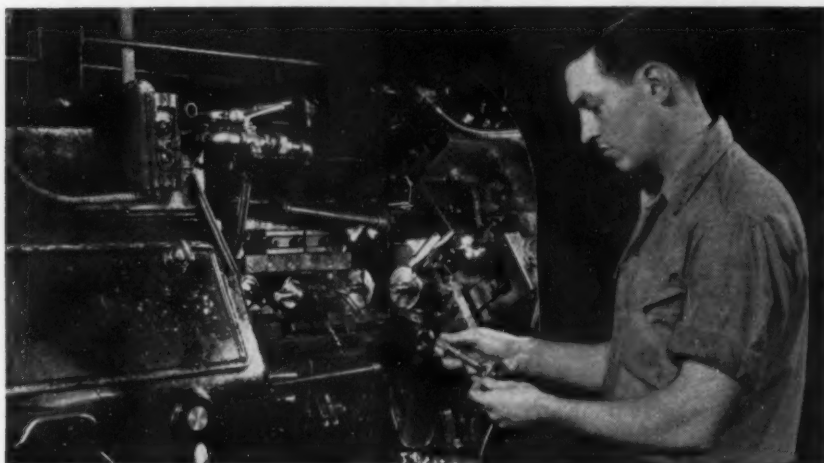
This selection of MICRO switches as important components of equipment which must give years of long-life performance is typical of the confidence placed in MICRO products by design engineers in every phase of industry. MICRO field engineers, with more than 6,000 varieties of precise snap-action switches from which to choose, are available to consult with you on the most complex switching problems. We invite you to contact the nearest MICRO branch office.

MICRO

A DIVISION OF
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY

MAKERS OF PRECISION SWITCHES
FREEPORT, ILLINOIS





SCREW MACHINES: Too Much Defense?

Order books read 45 pct defense on average . . . Industry gets set for some decline . . . See buyer's market shaping up . . . Virile field versus the captive shop—By T. Metaxas.

Does the sound of senatorial demands for military spending cuts make you jump?

Your willies are probably justified if you are one of the more than 1200 small business job shop owners in the screw machine products industry. If you are, then your average order book reads 45 pct defense and just 55 pct civilian. With this ratio it seems that what happens to your present production prosperity hinges on Moscow.

Worry & Prepare

You are wise to worry—and prepare. In the screw machine products field, which can expand capacity like an accordion merely by adding extra shifts, the Korean war has brought a certain amount of before-taxes prosperity. Faces still whiten at the thought of 1949, generally acknowledged to be the industry's worst year since 1939.

At the New York convention of the National Screw Machine Products Assn. last week, members could see the specter of a buyer's market taking substance in the fourth quarter of 1953. If substantial decreases of defense orders strike simultaneously, there will be widespread hair pulling. But with only a moderate general business drop, screw machines can

continue their profitable operations.

Not that this virile industry which manages to expand despite cyclical adversity will lie down and die. But outlining its problems in clear-cut terms presents the best opportunity for laying a defensive groundwork.

The industry is deeply involved in defense, deeper still in ammunition production. Its clever automatic lathes make a legion of small machined metal parts for such end products as ammunition, bomb-sights, appliances, autos, etc. One World War II bombsight had 1733 screw machine parts.

Ending the Korean shooting war, cutting military spending or stretching the defense timetable could lead to production cutbacks. Operating at about 90 pct of capacity today, the industry foresees a reduction of this rate in late 1953 and in '54.

The trouble does not end here. Not only is defense business vulnerable, but civilian business can sheer off. With industry in general predicting an easing in the fourth quarter, the independent screw machine firm has more cause to worry than most.

While the independent sphere of this industry has more than 1200 shops, the captive plant force num-

bers about 1580 shops. Most of the companies with captive plants still subcontract a substantial percentage of their orders to the independents.

But when there is an economic quiver downward, customers keep the home fires burning and they overhead down by cutting orders to independents while maintaining the productive rate of their own machines. From 1933 to 1939, the business decline of independent screw machine products makers was 25 pct under the average.

How to offset possible defense business declines and forestall any deeper encroachment by captive shops were popular topics among screw machine executives. Honing up selling campaigns and bolstering them with cost figures to show it's cheaper to subcontract parts was regarded as a must.

Diplomatically sidestepping the purchasing agent of the customer or using him as a means of introduction, screw machine makers should bring their cost sheets to the policy makers in the customer plant. They should strive to broaden the base of their industry and try to engineer costs down.

Meanwhile screw machine tools spin furiously. In December both new orders and shipments clamored to post-war highs—only to be surpassed by the January rate. February showed a dip but this was not regarded as a signal of imminent trouble.

Shows Strong Growth

Showing strong recuperative powers from business slumps, the screw machine industry has broadened its workforce by 47 pct in the past 6 years—and in the same period has enlarged its productive plant by 35 pct. In 1939 the industry had about 10,500 workers while today the number is close to 40,000.

In the peak business year of World War II the industry did a land office volume of \$800 million producing about 30 billion items for the military. During 1947 business volume was at about \$220 million while today the rate runs at most \$450 million.

STEEL: No. 1 Problem of Fabricators

Give us the steel and we'll put up your bridges and buildings say fabricators . . . Business is fine . . . Some are overbooking . . . Structural expansion lags—By W. V. Packard.

Steel fabrication and construction business is still riding the boom crest—with nothing in sight to cause alarm. No matter whom you talk to in this business you get the same answer: The No. 1 problem is steel. Almost without exception, fabricators and steel construction firms insist the only limit on their business is the amount of steel they can get.

Some Are Overbooking

Backlogs generally average about 8 months. They could be longer if it seemed more practical to extend them. Even so, there are indications that some fabricators are booking more steel than they will be able to fabricate.

Steel supply of course is not the only problem of this industry. They have plenty to say about the stifling role of high taxes on construction activity. Incidentally, they feel the prospect of future tax reductions has a lot to do with brightening the outlook for building, when many had predicted construction would be tapering off in 1953. That might still happen, but the signs don't point that way now.

Steel construction business is hottest in the West, Midwest, and South, in that order. Though not quite so hot in the built-up East, business is still good there. With West Coast fabricators booked to the hilt, inquiries on some jobs in that area have been floating into the Midwest.

Types Seen Shifting

Type of construction work is shifting, too. At a national engineering conference of American Institute of Steel Construction in Detroit last week, these trends were pointed out:

Defense construction is over the hump, is now trending down. But construction of civilian manufacturing plants is holding its own if not increasing. Electrical machin-

ery, transportation equipment, aircraft, and household appliance industries were reported still running strong in the expansion derby.

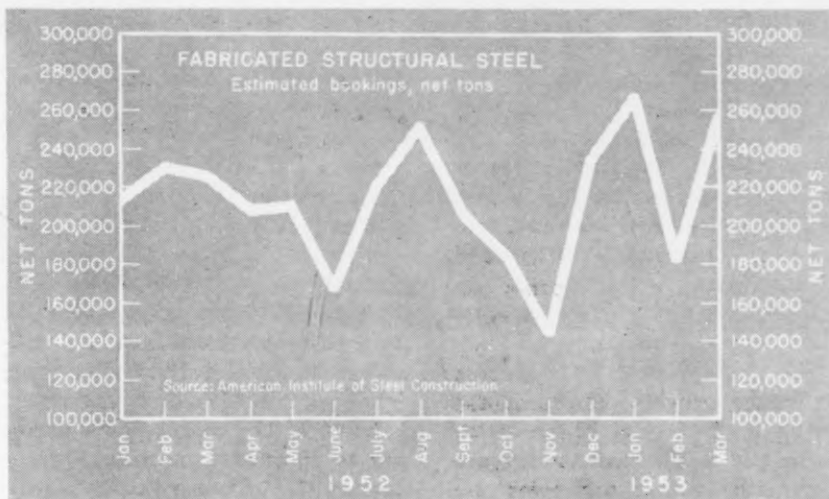
Highway and bridge building tempo is increasing. Pentup demand in this field is terrific; backlogs are growing. It has been estimated by one authority that backlogs for large projects already approved through 1955 amount to more than 11 million tons of structural steel. Roads and bridges

versing the recent trend toward more glass in side walls.

Fabricators expect a steel price increase as soon as the seventh round wage question has been settled. There are indications they wouldn't be surprised if the increase on structurals is a substantial one. (As in the past, the union will ask fabricators to match any wage increase granted by the steel industry.)

Some fabricators probably wouldn't squawk too loud over a price increase if there were some assurance that they would be getting more structurals. But there is little prospect of boosting production of structurals substantially.

Steel industry expansion is aimed at products where prospects are



don't account for all of this but they do account for the biggest part.

Note Building Trends

Industry appears to be paying very little attention to government urging on decentralization. Yet the trend in new plant construction is toward dispersion. The motives are better labor and human relations, more room for expansion, better transportation, lower taxes. Location of new plants near traffic arteries is causing more attention to be given to esthetics.

Materials handling requirements are causing plant bays to be built wider, and roofs are constructed to support more and heavier equipment. Planned maintenance is causing some changes, too, such as re-

brightest for high long-term demand and good profit margins. When subjected to economic analysis, structurals do not meet these requirements as well as sheet and strip or pipe. This is one of the biggest reasons why steel industry structural facilities are not being expanded as fast as some other finishing facilities such as sheet and pipe.

One steel official recently estimated that structural prices would have to be raised at least \$9 a ton to make them as profitable as sheets. This is the kind of thinking that has caused some steel officials to comment (perhaps a bit wistfully) that when steel prices are revised each product should bring in its own share of revenue.

RESOURCES: Look to the Future

Midcentury Conference will seek ways to assure U. S. raw materials position in decades to come . . . Will not dictate policies . . . Ike feels both government, business responsible.

Sights of the Midcentury Conference on Resources for the Future, booked to meet in Washington on Dec. 2-4, will be on ways to keep the U. S. supplied with materials for several decades to come.

Energy, vision, and an expert knowledge of the nation's needs in improving its world position are expected to characterize those who will present views on conserving resources and developing new supplies.

Chairman will be Lewis W. Douglas, chairman of the board of Mutual Life Insurance Co. of New York and former ambassador to the United Kingdom.

Groundwork for the conference was established in the Capital last week by a council of sponsors, representing a variety of public and private groups. Participants in this initial meeting passed a resolution saying in part:

"We believe that a resources conference along the lines proposed can be of great value to the entire nation and to the various elements in our society with particular and direct interests in resources.

"We endorse the idea of an exploratory conference that will consider resources problems in their broadest aspect, provide a forum for all viewpoints, seek to identify and clarify urgent problems, and set forth positions of all responsible groups and their reasons for those positions."

Important in the resolution is the designation of the conference as an "exploratory" assemblage, rather than a gathering for the purpose of providing precise solutions to resources problems. No votes are to be taken on strict policies, for example, and no program for congressional action is to be prescribed.

Instead, the plan is to center public interest on the resources situation as it now stands and as it may exist in 1975 and later. President Eisenhower, whose attention has been called to the project, believes both government and business have a "considerable responsibility" for improved utilization of resources.

Scope of the conference, according to Horace M. Albright, president of U. S. Potash Co., Inc., will take in "land and its products,

water, minerals, energy; not only materials, but the services that our resource base supplies. The general focus of the conference would be on domestic problems, although few resource problems are purely domestic."

Mr. Albright is president of Resources for the Future, Inc., operating under a Ford Foundation grant.

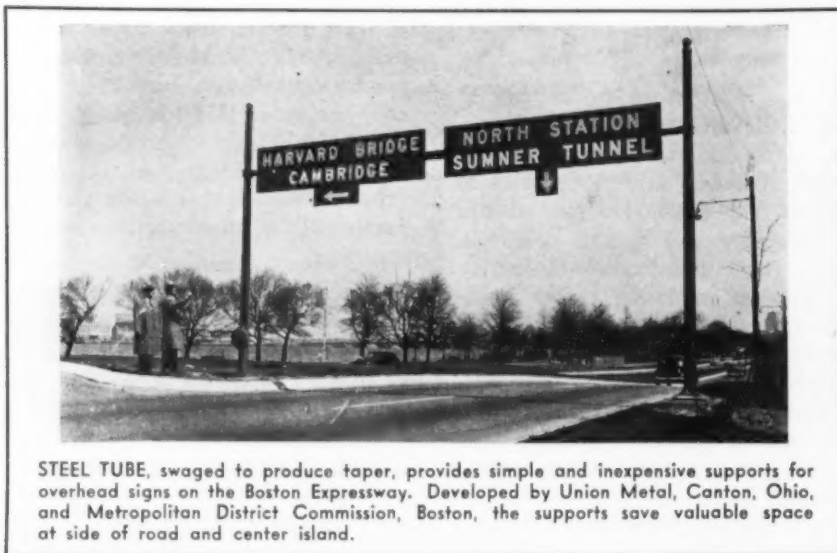
The council decided on a plan for setting up a conference steering committee.

Defense

Contracts Reported Last Week

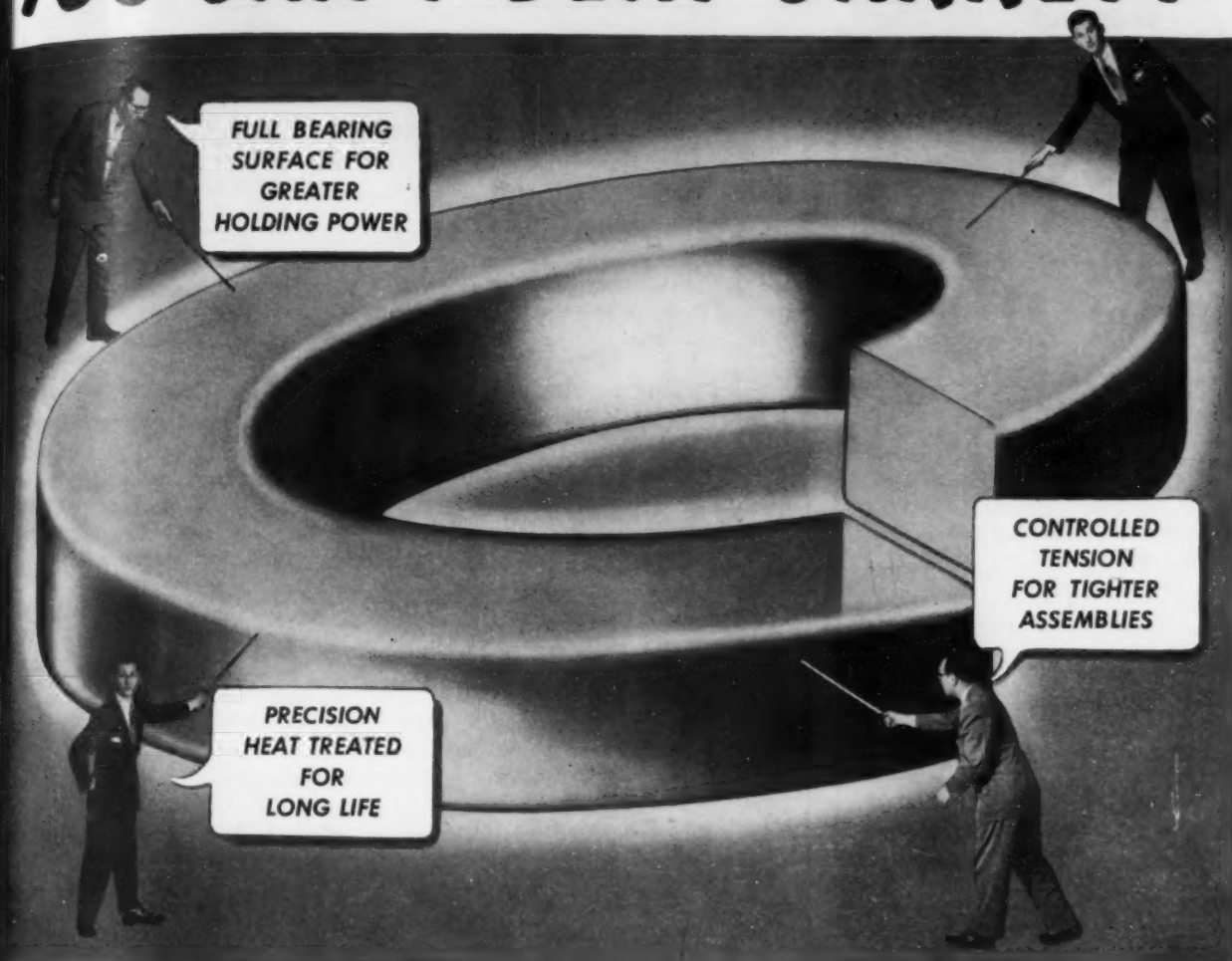
Including description, quantity, dollar values, contractor and address. Italics indicate small business representatives.

Replenishment of small arms parts, 7000, \$417,760, Stevens Mfg. Co., Ebersburg, Pa.
 Delay element, M2, 77800 units, \$167,270, Sturdy Engineering Corp., Norwood, R. I.
 Primer, percussion, 15450 units, \$176,722, Worcester Taper Pin Co., Worcester, Mass.
 Case, cartridge, 220000, \$860,200, Canadian Commercial Corp., Washington.
 Desk, office steel, 1628 ea, \$122,914, Superior Sleeprite Corp., Chicago.
 Motors & control apparatus, 300 ea, \$327,659, The Reliance Elec. & Eng. Co., Cleveland.
 Repair parts f/road grader, 21 items, \$62,660, Woodridge Mfg. Co., Sunnyvale, Calif.
 Repair parts f/rock crushers, 3 items, \$63,210, Pioneer Engr. Works, Minneapolis.
 Repair parts f/austin, 156 items, \$118,358, Austin-Western Co., Aurora, Ill.
 Mat, airplane landing, pierced metal, 1500000 sq ft, \$868,750, The Clark Grave Vault, Columbus.
 Fixture computer, 79, \$61,829, Acme Aluminum Alloy, Inc., Dayton.
 Turntable, gunbomb, 26, \$54,740, Acme Aluminum Alloy, Inc., Dayton.
 Shell, 240 MM, Howitzer, 50000, \$4,379,500, U. S. Steel Co., Pittsburgh, G. M. Hultz.
 Head, 3.5" rocket, 140000, \$323,400, U. S. Steel Co., Pittsburgh, G. M. Hultz.
 Trucks, lift, 320, \$60,760, Service Caster & Truck Corp., Somerville, Mass.
 Fin assy, 303, \$99,244, The Boardman Co., Oklahoma City.
 Parts for 40 MM gun, 3250, \$261,625, Davis Machine & Mfg. Co. & Associates, Lubbock, Texas.
 Container, shipping, reusable, steel, 2500 ea, \$756,450, Watson Automotive Equip Co., Washington.
 Machine, dishwashing, 60 ea, \$150,492, Peters Dalton, Inc., Detroit.
 Machine, dishwashing, 138 ea, \$132,107, Gresham & Co., Inc., Kansas City, Mo.
 Table, office, steel, 2671 ea, \$75,073, Joseph Turk Mfg. Co., Bradley, Ill.
 Cup, canteen, 347000 ea, \$255,357, Pressed Steel Car Co., Melrose Park, Ill.
 Repair parts for intercommunication equip, 2730, \$93,638, Westinghouse Electric Corp., Philadelphia.
 Repair parts for pumps and turbines, 2542, \$130,528, Dravo Corp., Philadelphia.
 Repair parts for laundry machinery, 18034, \$51,393, The American Laundry Machinery Co., Cincinnati.
 Repair parts for gas engines, 10023, \$108,016, Outboard Marine Mfg., Waukegan, Ill.
 Paint gun spray, 5718 ea, \$107,495, Blinks Mfg. Co., Chicago.
 Case, cartridge, brass, 20 MM, 7205886, \$1,403,368, Stoner Mfg. Co., Aurora, Ill.
 Fin assy, 21239, \$286,726, Rheem Mfg. Co., Chicago, W. H. Roy.



STEEL TUBE, swaged to produce taper, provides simple and inexpensive supports for overhead signs on the Boston Expressway. Developed by Union Metal, Canton, Ohio, and Metropolitan District Commission, Boston, the supports save valuable space at side of road and center island.

YOU CAN'T BEAT GARRETT



SPRING LOCKWASHERS

Get greater holding power in each assembly with the exclusive Controlled Tension built into every Garrett Spring Lockwasher. Assures greater spring tension of correct pressure on every bolt and nut... longer life to every assembly.

Garrett makes a complete line of spring lockwashers of high carbon steel, bronze, aluminum, stainless-steel or monel metal... plated to your requirements. Garrett also manufactures washers to all Armed Forces Specifications... such as AN935, BECX1, BECX2, BECX3 and others. All are ready for...

IMMEDIATE DELIVERY FROM STOCK

OTHER PRODUCTS MANUFACTURED BY GARRETT

FLAT WASHERS
Most complete line of washers in the world. To all civilian and Armed Forces specifications.

STAMPINGS
Quick delivery on small and medium stampings made to your specifications on high speed, precision production presses.

HOSE CLAMPS
AIRCRAFT AN737 Stainless steel radial type
MULTI-CLAMP (QS100 & AN748) worm type screw hose clamp
AUTO-SEAL the inexpensive high quality hose clamp



GEORGE K. GARRETT COMPANY, INC.

PHILA. 34, PA.

HAVE YOU TAKEN
THE FOUR
GOOD STEPS?

See page 6

This FREE New Booklet Tells You How

In its 28 illustrated pages you'll find the answers to many questions that affect the success of your electroplating on steel. You'll want to read more about:

- ❑ Which costs more: good electrocleaning or poor electrocleaning? *See page 4.*
- ❑ How can cleaning costs be reduced 33% while plating quality is being improved? *See pages 7 and 8.*
- ❑ What are four easy ways to improve the average rinse tank? *See page 10.*
- ❑ What rinsing fault is "an invitation to trouble" in the plating of high-carbon steel? *See page 11.*
- ❑ Why is it better to clean steel with reverse current than with direct current? *See pages 12 to 14.*
- ❑ What causes hydrogen embrittlement during electrocleaning? What is the remedy? *See pages 15 and 16.*
- ❑ One part chromic acid in 1,000,000 parts of cleaning solution—does that spell D-A-N-G-E-R? *See page 16.*
- ❑ How can an ordinary electrocleaning cycle be transformed into an exceptionally good cycle? *See Cycle E on page 23.*

FREE For a copy of "Four good steps toward better electroplating on steel", write to Oakite Products Inc., 30H Rector St., New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS • METHODS • SERVICE

Technical Service Representatives Located in
Principal Cities of United States and Canada

Industrial Briefs

Almost Ready . . . DIAMOND MACHINE TOOL CO. reports that construction is almost completed on the new factory and general offices at Pico, Calif.

Finished . . . THE LURIA ENGINEERING CO., Bethlehem, Pa., has erected a new steel-framed freight house for the Chicago, Burlington & Quincy R. R. at Morton Park, Cicero, Ill.

Parts Plant . . . THE AMERICAN BOSCH CORP., Springfield, Mass., will build a \$2 million automotive electrical parts plant at Columbus, Miss.

Voted Upon . . . Stockholders of Combustion Engineering - Superheater, Inc., voted to shorten the company name to COMBUSTION ENGINEERING, INC., at their annual meeting.

First Tenant . . . THE WORTHINGTON CORP. has become the first tenant to lease space in the new 26-story, aluminum-faced office building under construction at 99 Park Ave., New York. The owner-builder of the skyscraper is Tishman Realty & Construction Co., Inc.

Increases Size . . . THE PARKER STAMP WORKS has erected a new plant addition and an extensive increase in personnel and equipment is reported.

Congrats . . . Joseph H. Flaherty, Jr., steel works metallurgist, Pittsburgh Works Div., JONES & LAUGHLIN STEEL CORP., Pittsburgh, received the F. B. McKune Memorial Award at the National Openhearth Conference of the American Institute of Mining & Metallurgical Engineers recently.

Delivers Bulldozer . . . ALLIS-CHALMERS MFG. CO. has delivered a new massive tractor bulldozer to U. S. Corps of Engineers from its Cedar Rapids, Iowa, Works.

Going Up . . . THE BLACK & DECKER MFG. CO. reports that ground was broken recently to begin the actual construction of \$2 million addition to its Hampstead, Md., branch plant.

New Dealer . . . HYSTER CO., Portland, appointed R. E. Brooks Co., Hasbrouck Heights, N. J., as dealers in Hyster industrial truck equipment.

For Music Lovers . . . The great music festivals that are prime magnets for many European countries will be brought into American homes this summer through a new kind of music "reporting." CBS radio network and sponsor, WILLYS-OVERLAND MOTORS, INC., have arranged for a 23-weeks program that will carry hour-and-a-half Sunday afternoon radio broadcasts, starting May 3.

Joint Service . . . CENTRAL STATES ENGINEERING CORP. and Ace Tool & Die Co., both of Detroit, report a new joint service to design and build machinery and supporting tooling for cost-reducing, automatic manufacturing operations.

Metal Cans . . . METAL & THERMIT CORP., New York, reports that its Murex line of stainless steel arc welding electrodes is now being packed in hermetically sealed metal cans.

Texas Office . . . REYNOLDS METALS CO. has opened a new sales office at 305 Central Bldg., Midland, Tex. Andrew R. Davis, Jr. is in charge.

Factory Branch . . . THE NATIONAL RADIATOR CO., Johnstown, Pa., has established a new factory branch sales office at 960 W. St. Clair Ave., Cleveland.

Moved In . . . A. MILNE & CO., New York, has moved into a new warehouse, built to their own specifications, at 11110 Avon Ave., Cleveland.

Gets Contract . . . TEMCO AIRCRAFT CORP. has been awarded a contract to modify two Lockheed Constellations so as to provide 70-passenger interiors for Pan American World Airways.

Company Improvements . . . CONTINENTAL CAN CO. will construct a new warehouse that will triple storage facilities at its Malden, Mass., plant.

Furnishing Piping . . . Power Piping & Sprinkler Div. of BLAW-KNOX CO. is furnishing the complete piping for an addition to the power facilities at the Ohio Works of U. S. Steel Corp. in Youngstown.

Specify



DECK HINGE

for
**High Strength
with Excellent
Cold-Forming
Properties**

N-A-X HIGH-TENSILE, having 50% greater strength than mild carbon steel, permits the use of thinner sections—resulting in lighter weight of products. It is a low-alloy steel—possessing much greater resistance to corrosion than mild carbon steel, with either painted or unpainted surfaces. Combined with this characteristic, it has high fatigue and toughness values at normal and sub-zero temperatures and the abrasion resistance of a medium high carbon steel—resulting in longer life of products.

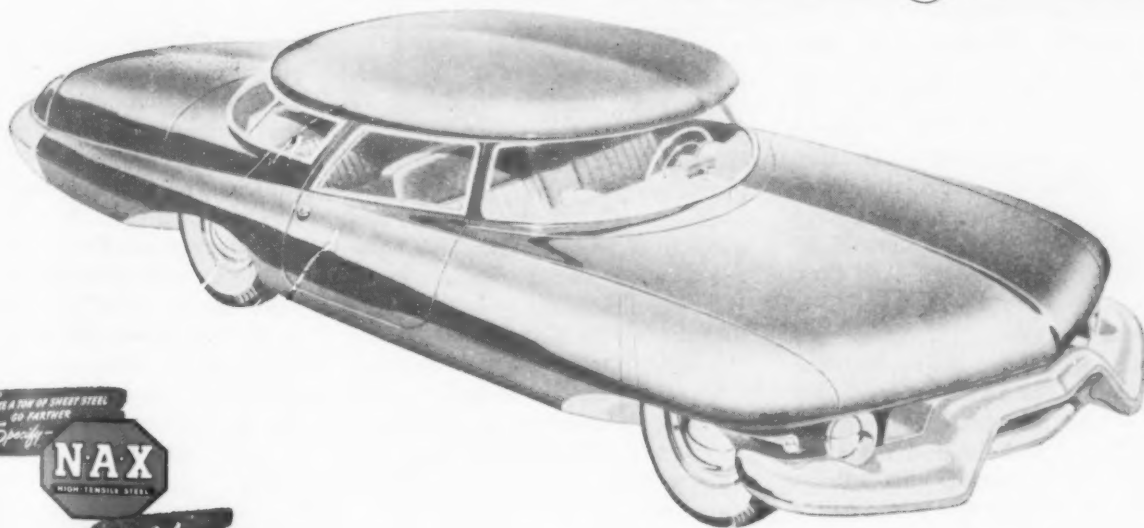
N-A-X HIGH-TENSILE, with its higher physical properties, can be readily formed into the most difficult stamped shapes, and its response to welding, by any method, is excellent. Due to its inherently fine grain and higher hardness, it can be ground and polished to a high degree of lustre at lower cost than can mild carbon steel.

Your product can be made lighter in weight . . . to last longer . . . and in some cases be manufactured more economically, when made of N-A-X HIGH-TENSILE steel.

GREAT LAKES STEEL CORPORATION

N-A-X Alloy Division

Ecorse, Detroit 29, Mich.



KEEP YOUR SCRAP MOVING TO YOUR DEALER

The Automotive Assembly Line

Gloom Boys Still Wrong On Auto Sales

Car market stays high despite bearish predictions . . . March, traditionally slow, busts records . . . Dealer inventories at 2-year peak, but nobody's worrying—By R. D. Raddant.

Cold facts continue to disprove pessimistic reports and bearish predictions that the auto market was about to break, if it hadn't already.

During the month of March in particular, forecasters and interpreters of the auto market held up cautioning fingers. They warned that the industry, producing at record rates, might be overextending itself.

Sales High . . . But in this very month, sales were actually exceeding the rate of any single month since record-breaking days of 1950. March is traditionally one of the slowest months and this year had some of the worst weather, in itself a major factor that usually slows sales.

Statisticians R. L. Polk & Co. predict, on the basis of 16 states tabulated so far, that total new car registration in March will exceed 530,000 cars. This will be the first 500,000 month since December 1950.

Automotive News reports that dealers' inventories are at a 2-year peak, but views this without alarm and points out that new car stocks are "well below the saturation point." This magazine, which reflects dealer sentiment, says that selling morale is also buoyed by the rate of movement of used cars.

Getting Tight . . . There are some weak spots in the market, but in general the industry is strong across the board. Price cuts at Chrysler have bolstered what appeared to be some unsteadiness there. In only a few cases can a prospective buyer get immediate delivery of a car and in some cases the wait may be quite lengthy.

The spring boom is only getting under way and barring unforeseen troubles, the auto market may get quite tight by the middle of June.

The auto industry's remarkable production surge creates its own market and is responsible to a large extent for its own prosperity.

"Sustained Employment" . . .

This was pointed out graphically by T. H. Keating, Chevrolet general manager, in reporting that his division of GM has reached an all-time employment peak for its 26 manufacturing and assembly plants.

"Sustained employment is the solid foundation of this year's re-

Automotive Production

(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
Apr. 25, 1953 . . .	156,887*	33,581*
Apr. 18, 1953 . . .	132,325	29,846
Apr. 19, 1952 . . .	104,171	29,970
Apr. 12, 1952 . . .	102,776	28,881

*Estimated Source: Ward's Reports

markable buying power," he said. "I've been in this business 35 years and I've never seen anything to match the strength of this year's market."

Chevrolet's employment has passed the 90,000 mark. This compares with 85,381 employees in December 1950, the previous high, and the World War II peak of 71,639. Mr. Keating pointed out that Chevrolet's increased employment probably is reflected in even larger comparative employment increases among Chevrolet's thousands of suppliers.

Keep Output High . . . Chevrolet's 90,000 employees (13,000 are

on defense work) are keeping this world's largest auto producer well ahead of the pack in the automotive production race. Schedules are over 30,000 a week and going higher. Only last week the division announced a new spring and bumper plant for Detroit.

At Chevrolet's new model showing, dealers were reported to have taken orders for 60 days' production within 2 days. On the basis of this indication of market strength, Chevrolet launched an orderly production expansion which has resulted in the record employment and an amazing production rate.

Happy Haulers . . . Among the byproducts of the full capacity steel production and consumption is cheerful prosperity among steel haulers of the highway.

Steel truckers are reporting record dollar volume and major increases over a year ago in heavy hauling of steel and steel products.

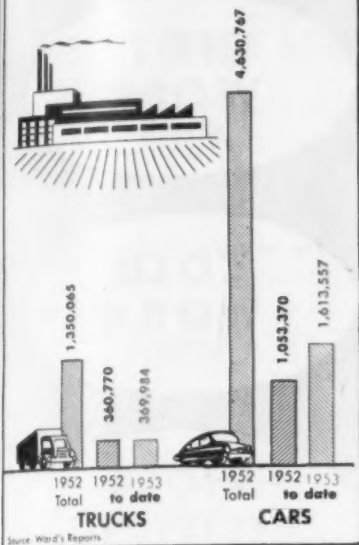
A good example is the George F. Alger Co., Detroit, one of the nation's largest steel haulers. This trucking firm reported the sharpest increase in business in the first quarter for any 3-month period in the company's 36-year history.

Steel Climbs . . . While the company's dollar volume was up 50.1 pct for the quarter compared with the same period of 1952, heavy hauling (steel) gained 60.8 pct. Increase in general commodities was 29.5 pct.

Dollar volume for heavy hauling in the quarter was \$2,372,775 this year against \$1,475,855 for 1952. A. C. Scott, president and general manager of the motor carrier company, predicted that his company would surpass its \$10 million record by possibly \$3 million this year.

Slow Freeze . . . Toolmakers with orders for Chevrolet's new V-8 are a little concerned over

Production Rate



failure to freeze the final design. Orders have been placed and work has started on a lot of the tooling, but revisions and changes have continually occurred.

Title Bout . . . The Ford-Chevrolet engine feud starting in 1954 with Ford's new overhead valve V-8 may turn into one of the toughest competitive fights in automotive history.

In the Ford corner, backers contend that Ford's V-8 experience over the years and new manufacturing facilities developed in Ford's postwar expansion period may tip the scales in Ford's favor. Furthermore, Ford will have a full year's head start.

On the other hand, Chevrolet's engineering is headed by E. N. Cole, who was chief engineer at Cadillac when Cadillac's high compression engine was developed. It can't be said he lacks V-8 experience!

One story is that when Mr. Cole took over as Chevrolet's chief engineer, he took one look at the V-8 that was then planned for production. Mr. Cole, who is known as a man of decision, is said to have hit the roof, contending that the engine was just a smaller version of the Cadillac-Oldsmobile engine. Where were the results of new knowledge?

FORD:

Will new V-8 be built at proposed Cleveland engine plant?

Announcement of a new Ford engine plant in Cleveland raised immediate speculation about what engine the company planned to build there.

The new plant will be adjacent to the company's present engine plant and foundry in Brookpark Village, south of Cleveland. The two plants are considered show-places of automation for modern foundry facilities and automatic engine manufacturing.

Could Make V-8's

The engine plant is currently turning out Ford 6's and the new Mercury line is being laid out there. Ford is also just about ready to produce its new V-8 either at River Rouge or possibly in the Cleveland plant.

The new plant, which is still in the planning stage, could be used to

manufacture Lincoln engines or even powerplants for the new car that Ford is planning to add to its line in the foreseeable future.

This car will be in the price class between the Mercury and Lincoln, obviously in competition with Oldsmobile and Buick. With this car still in the planning stage, it could be about ready for production at the time the new engine plant is ready to produce.

Ford's reticence to announce immediately what is planned for the proposed plant's future helped spread that speculation.

Addition of a new engine plant may also indicate that Ford does not intend to scrap its 6 in the near future, as has been rumored occasionally. The 6 is an excellent engine, but the trend is away from in-line engines in all auto companies. Fact that this plant was tailored for 6-cylinder engine production has aroused some talk that it may be a white elephant if the 6 does not gain enough popularity to make the plant pay.

THE BULL OF THE WOODS

By J. R. Williams



the one source

**HIGH
SPEED
STEELS**

**HOT
WORK
STEELS**

**COLD
WORK
STEELS**

**SHOCK
RESISTING
STEELS**

for better tool and die steels

LATROBE... the one source that furnishes tool steel free of carbide segregation - whether you buy on mill order or from warehouse stocks ... the only producer to offer disc inspection service to all tool steel users as a guarantee of the top quality you get on every order ... the supplier who uses ultrasonic Reflectoscope inspection to assure you of internal soundness in the tool steel you purchase.

**WATER
HARDENING
STEELS**

**SPECIAL
PURPOSE
STEELS**

CONTACT YOUR LOCAL LATROBE REPRESENTATIVE

LATROBE STEEL COMPANY

Latrobe, Pennsylvania

Sole Producers of "DESEGATIZED" Steels

Sales Offices and Warehouses: BOSTON BUFFALO CHICAGO CLEVELAND DAYTON DETROIT HARTFORD
LATROBE MILL LOS ANGELES MILWAUKEE NEW YORK PITTSBURGH PHILADELPHIA ST. LOUIS TOLEDO

This Week in Washington

Filibuster Snags Control Bill Debate

Tidelands oil dispute upsets schedule of debate on controls bill . . . May result in simple extension of allocations . . . Labor Dept. wants wage plan facts—By G. H. Baker.

Washington's authority to allocate steel, copper, and aluminum for defense and atomic energy orders may be headed for a simple 30-day or 60-day extension by Congress, pending outcome of Senate-House differences over the scope of long-range controls legislation. In the Senate, filibustering over the tidelands (off-shore oil) bill has upset the scheduled calendar of debate. Consideration of the controls bill (Defense Production Act) has been postponed indefinitely.

House Hasn't Budged . . . In the House, the Banking Committee has yet to make the first move leading toward hearings on controls measures. Chairman Jesse P. Wolcott of the House committee still holds to the position that since President Eisenhower hasn't asked for any new controls there's no reason for hearings.

Result, at this rate, may be a brief extension of the present controls act in its present form. This would mean postponement of all features of the so-called Capehart bill, including White House authority to freeze all prices and wages for 90 days, authority to allocate scarce materials for military and atomic energy, and authority to control rents in "critical" areas.

Wage Plan Facts . . . U. S. Labor Dept. continues to press its search for facts and views on how guaranteed annual wage plans operate. Latest move is a request by the Labor Dept. to state employment agencies for information on the experience state governments have had with guaranteed wage programs.

Administration officials have al-

ready asked Congress for funds to study existing wage-guarantee plans, "in case" they begin to get a foothold in larger industries. Walter Reuther, UAW-CIO president, has promised an all-out fight for adoption of a guaranteed wage plan in the auto industry. United Steel Workers, CIO, has made a similar pledge to its membership.

Budget's Been Cut . . . Budget-cutting by the Eisenhower Administration has finally yielded some tangible results. Reductions made in the Truman budget for fiscal 1954 now total about \$960 million, and there are strong indications that the savings—although still on paper—soon will go over the \$1 billion mark.

This means the prospect of tax reductions this year have improved. If the Senate and House are able to stand firm against the demands of pressure groups for restoration of some of the slashed funds, there's a good chance that the Truman estimate of \$78.6 billion for fiscal '54 may be pulled down to \$72 billion—or even \$71 billion. Assuming that estimated government income doesn't fall too short, the White House may



be forced to temper its opposition to tax cuts this year.

Chicken Feed for Commerce . . . Government advice to industry on how to hypo sluggish sales may be cut back sharply in the weeks ahead. Some industry experts on distribution believe the Commerce Dept. Office of Distribution should be provided with a \$300,000 to \$400,000 working kitty for the new fiscal year, but House Appropriations Committee members are thinking along the lines of a \$177,000 fund. Ex-President Truman had requested \$1 million for the Office of Distribution.

Industry spokesmen point out that the Agriculture Dept. has obtained appropriations averaging \$10 million annually for the purpose of studying marketing trends and advising the food industry on how to chart its courses. Comparatively, it is pointed out, a sum of \$300,000 for similar advice to the manufacturing industries is "chicken feed."

Asks Tariff Protection . . . A spokesman for the Colorado Mining Assn. last week urged Congress to enact proposed legislation imposing a sliding scale of import duties on lead and zinc.

Robert S. Palmer, association vice-president, told the House Small Business committee that such support for domestic prices is necessary to save the lead-zinc mining industry from virtual extinction.

Such legislation is fair to all concerned, Palmer told the committee. It is not designed to shut off imports since provision in the proposed legislation would automatically lift the import tax whenever the domestic market price equals or exceeds the base price.

Ike Okays Seaway . . . President Eisenhower's endorsement of joint U. S.-Canadian development of the St. Lawrence River substantially



How long will the lining of a coal-fired furnace last?

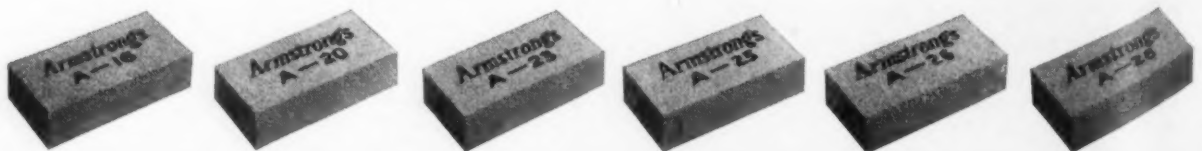
These powdered coal-fired annealing furnaces were built in 1938 for the Walworth Company, Greensburg, Pa. For 15 years, their linings of Armstrong's Insulating Fire Brick have had to withstand the abrasive action of powdered coal. Yet today, original linings are still on the job, operating year after year on an 86-hour cycle.

This record illustrates the kind of service you can expect when furnaces are lined with insulating fire brick carefully chosen to meet the demands of the job. Here, as in many furnaces, no one brick was best for all areas. The job called for three different types.

Arches, where temperatures are highest, are made of 9" of Armstrong's A-26 Insulating Fire Brick. Sidewalls are 9" of Armstrong's A-23's

backed up with 4½" of Armstrong's A-16's. The floors are insulated with A-23's topped with 4" of paving brick.

Armstrong offers a complete line of Insulating Fire Brick to withstand any temperature from 1600° to 2800° F. Each type is formulated to give you the best possible combination of mechanical properties and thermal efficiency for its temperature rating. Light in weight, yet possessing unusually high strength, these brick simplify furnace design and also permit more accurate temperature control. For more information on these "property-balanced" refractories, call your nearest Armstrong office or write direct to Armstrong Cork Co., 2704 Susquehanna Street, Lancaster, Penna.



ARMSTRONG'S INSULATING REFRACTORIES

strengthen
vocates in
of legislati
ticipation
White
of the pro
basis follow
U. S. - Ca
Mr. Eisenh
Council.
Mr. Eis
gress cont
ciple of U
seaway, th
all obstac
project by

Labor

High
satiab

Labor
some field
mobile o
demand
state a
meet it,
Job of
motive
stantial
hard-to-
early A

Large
workers
fication
opening
and en
concent
and Fli

Thes
about t
the au
with a
a whol
Alth
in nu
were s
time i
die m
and m
mobile
Nes
profes
sonne
neers
Op
were
about
ings
cente

strengthens the hand of seaway advocates in Congress. But passage of legislation authorizing U. S. participation still is a long way off.

White House nod to a launching of the project on an international basis followed endorsement of joint U. S. - Canadian participation by Mr. Eisenhower's National Security Council.

Mr. Eisenhower believes if Congress continues to reject the principle of U. S. participation in the seaway, then it should at least clear all obstacles to construction of the project by Canada.

Labor:

High auto output exerts insatiable demand for workers.

Labor demand is leveling off in some fields but continued high automobile output has created such a demand that combined efforts of state and local agencies can't meet it, says the Labor Dept.

Job openings listed by the automotive industry make up a substantial percentage of the 52,000 hard-to-fill vacancies carried in early April.

Largest number of requests for workers in any single job classification during March was 5600 openings for automobile laborers and entry workers. These were concentrated largely in the Detroit and Flint areas.

These demands accounted for about 80 pct of vacancies listed by the automobile plants as compared with about 65 pct for industry as a whole.

Although vacancies were fewer in number, employment agencies were still having an equally tough time in getting machinists, tool and die makers, mechanical engineers, and machine shop workers for automobile, ordnance and aircraft.

Nearly 40 pct of all requests for professional and managerial personnel was for mechanical engineers and draftsmen.

Openings for 2400 draftsmen were scattered over 45 states but about one-fifth of the 2100 openings for mechanical engineers were centered among aircraft plants.

Business:

Retail counters handle peak production, survey shows.

Record production is finding its way to retail levels without any damming up, reports the U. S. Commerce Dept. after taking a look at its first quarter business survey.

A continued high level of income is bolstering retail sales. These in turn are maintaining a high rate of spending for productive facilities and investment in capital equipment.

On an almost across-the-board basis the economy is more active than last year, Commerce Dept. says. Here is an item-by-item view from the department's surveys:

Personal Income: A small decline in farm income but the overall personal income rate stands at nearly \$281 billion, a new annual rate for this time of year.

Retail Sales: Overall figure up 9 pct from a year ago and 2 pct above last quarter 1952. Automobile sales account for largest individual selling category but all major groups show increases.

Business Inventories: Reflecting optimism from retail selling, business inventories showed steady increases of \$100 million a month.



SELECTED by Interior Secretary McKay. Tom Lyon, Salt Lake City, is being opposed as new head of Bureau of Mines by John L. Lewis.

Construction: Indications are that a new record will be chalked up. First quarter 1953 total of more than \$7 billion is highest ever. Private construction is making up for lost time with relaxing of materials controls.

Industrial Expansion: Although bloom has worn off the expansion program, spending for plants and new or replacement equipment still shows a small increase above previous quarters. Latest surveys indicate such spending will hit a new high this year of \$27 billion.

Industry Has More Cash on Hand

Industry is bracing itself for the long haul by building up its working capital while it expands.

The annual report by the Securities & Exchange commission figures industry began 1953 with \$4 billion more in working capital than at the start of 1952.

Total working capital of corporations as of Jan. 1 was estimated by the SEC at \$86.5 billion.

A major reason for the increase was that there was very little change in overall inventory levels during 1952, these having been built up during 1951.

During the year, corporations increased their cash holdings by \$1.4 billion to a total of \$31 billion while reducing their holdings of government securities by \$300 million to about \$21 billion.

About 75 pct, or \$3 billion, of the increased working capital was accounted for by manufacturing.

It was estimated by the SEC that industry invested well over \$22 billion in plant expansion and capital equipment during 1952.

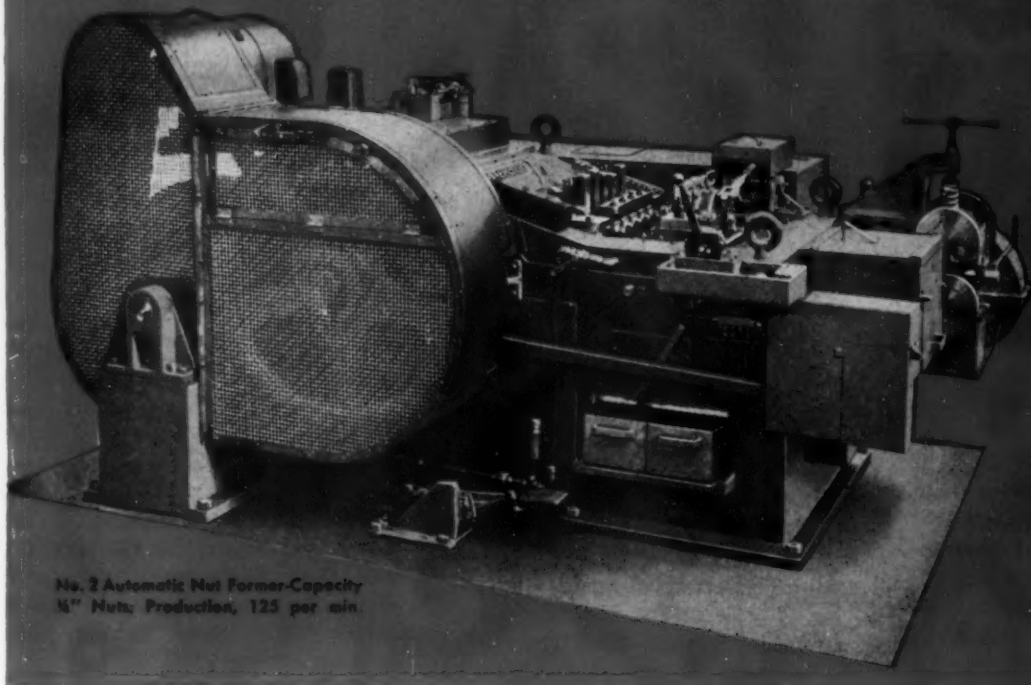
Big Job for Aircraft Executive

Direction and supervision of procurement planning and programming are only a part of the job taken over by Roger Lewis, former vice-president of Curtiss-Wright Corp., when he recently became Air Force Assistant Secretary for Materiel.

A new list of responsibilities assigned by Air Force Secretary Harold E. Talbott to his principal subordinates gives Lewis jurisdiction over ten other matters.

Waterbury-Farrel Announces

A NEW STEP FORWARD... IN AUTOMATIC NUT FORMING...



No. 2 Automatic Nut Former—Capacity
1/2" Nuts: Production, 125 per min.

TO FINISH
in less than 1/2 a second

Scrap

To step-up your nut-producing facilities, look to Waterbury-Farrel's new line of automatic nut formers.

Check these production-boosting design features.

HIGH SPEED—without sacrificing quality. Nut blanks need no subsequent operation except threading.

SIMPLIFIED TOOLING—larger tool holders.

EASY-TO-GET-AT ADJUSTMENTS—save "down" time.

NEW CUT-OFF DEVICE—of ingenious design.

SIMPLIFIED TRANSFER MECHANISM—with locking device for position.

HYDRAULIC CONTROL—for feed and brake action.

SAFETY-INTERLOCKED LUBRICANT PUMPS—for machine and tools. Machine cannot be operated until lubricant is turned on.

BLANK INVERTER—for work that must be turned over during sequence of operations.

Write, wire or phone for further information.

**WATERBURY FARREL
FOUNDRY & MACHINE COMPANY**

WATERBURY, CONNECTICUT, U. S. A.

In Equipment, Experience Counts . . . We were 100 in '51!

We're always pioneering . . . we started over 100 years ago on March 5, 1851. When we stop pioneering, we stop (period). In this ad you'll find evidence that we're going ahead, into our second century.

A FEW OF THE MANY TYPES OF METAL WORKING MACHINERY MADE BY WATERBURY FARREL
COLD PROCESS BOLT AND NUT MACHINERY—Headers (all types) • Re-headers • Trimmers • Thread Rolling Machines • Slotters • Nut Tappers, etc. **POWER PRESSES**—Crank, Cam and Toggle; also Rack and Pinion Presses • Multiple Plunger Presses • Hydraulic Presses, etc. **MILL MACHINERY**—Rolling Mills • Wire Flattening Mills, Chain Draw Benches • Slitters and various accessory mill machinery. **WIRE MILL EQUIPMENT**—Continuous Fine Wire Drawing Machines (Upright Cone and Tandem) • Bull Blocks • String-up Machines • Spoolers, etc.



West Coast Report

Coast Mills Set New Output Records

Western steel production reaches new highs to meet demand
... U. S. Steel brings new Geneva mill to full output ... Hot
appliance market keeps sheet demand high—By T. M. Rohan.

Western steelmakers are tapping every ounce out of their furnaces to meet customer demands and are chalking up new production records steadily.

Last week both Kaiser and Bethlehem's West Coast plants reported all-time record monthly ingot production for March and expect April to surpass them. And Kaiser at week's end was within a shade of setting a new weekly production record, thanks largely to its ninth new openhearth.

Kaiser's March output was 130,647 tons of ingots. Bethlehem poured 86,384 tons in its Seattle, San Francisco and Los Angeles plants although rated capacity is 75,000. Its previous record was 80,477 tons in August 1952 shortly after the strike.

Speed Sheet Mill ... U. S. Steel at Geneva is now getting into heavy production on its 100,000 annual ton hot rolled flat sheet mill. Installed for some time, the mill has not yet hit full production for lack of ingots.

Since discontinuance of the old hand mill at U. S. Steel's Torrance plant a few weeks ago, this has been the only mill in the West for flat rolled sheets.

The new mill will produce at about 25 pct the manhours of the hand mill, cuts sheets automatically, eliminates pack annealing and results in a greatly improved product.

Appliance Demand ... Largely responsible for hot and cold rolled sheet demand are appliance manufacturers now running at full production.

Refrigerators, for instance, are selling 40 pct ahead of the same

period last year, ranges about 30 pct, automatic washers about 40 pct and electric water heaters about 20 pct. Only drop-off has been in electric dryers, traceable to an unseasonably warm, dry spring in the West.

DeLuxe, Please ... And buyers won't settle for standard models. Westinghouse's western district office in San Francisco reports, for instance, luxury model ranges in the \$500 class are top demand items while standard models in the \$250 class move slower.

One major building contractor, for instance, ordered a large quantity of older type refrigerators and installed them in his housing development. Prospective home buyers turned up their noses at the older models so the dealer removed them, sold at a loss and installed the latest models.

And contractors are now installing complete kitchen appliance set-ups in houses, including garbage disposal units and dishwashers to please customers.

Competitive ... Midwest and eastern manufacturers must meet prices of a host of exclusively western appliance producers un-

known outside their territory. On units such as hot water heaters, where the tank represents the major cost component, western manufacturers have a cost advantage and freight umbrella.

But where labor cost is predominant, new high efficiency appliance plants like General Electric's \$200 million Louisville plant and Westinghouse's Mansfield, Ohio, plant can mass produce for considerably under western labor costs.

Holes Show ... While demand for sheet for appliances and allied products continues at a high rate, some holes are beginning to show.

Mills have received some cancellations for structural shapes, bars, nuts and bolts and other hardware from agricultural implement makers. Lower farm prices with resulting decreases in purchasing are principally blamed.

At week's end, Bethlehem raised prices on "extras" for carbon bars and certain other products.

New Convert ... The Los Angeles smog board's most outspoken member has long been Supervisor Kenneth Hahn. And his chief target has been Bethlehem's Los Angeles plant which he recently labeled "one of the worst smog offenders in southern California."

Last week Bethlehem officials rolled out the red carpet for Mr. Hahn. They explained close smog control for electric furnaces is unprecedented in the industry and showed hoods and electrostatic precipitators developed so far costing probably \$1 million.

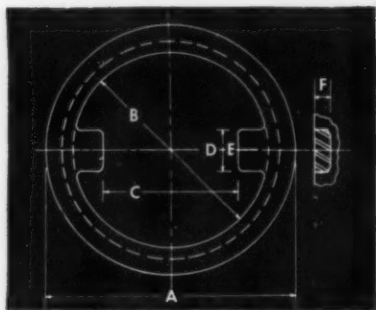
These are now collecting the required percentage of solids emitted, but a formal approval has not been issued. Mr. Hahn and other board members who have granted Bethlehem repeated "variances" or short term exemptions for development praised the firm's "excellent attitude." The air has cleared in more than one way.

West Coast Steel Production

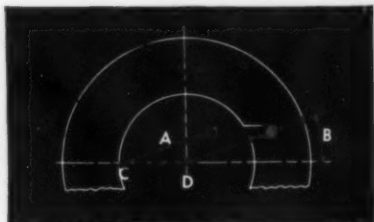
	Actual 1952	Estimated 1953
Plates (Sheared and Universal) ..	540,233	586,200
Hot and Cold Rolled Strip	67,671	71,625
Hot and Cold Rolled Sheets and Tinsplate	540,991	579,800
Standard and Line Pipe	563,169	590,400
Structural Shapes	263,132	314,075
Reinforcing Bars	459,248	516,150
Other Bars and Small Shapes	438,199	476,000
Wire Products and Wire Rods for Sale	223,252	276,622
Total Rolled Products	3,195,695	3,710,672
*Ingots, Blooms and Billets for Sale	153,381	173,550
*Miscellaneous	29,900	37,925

* Not included in rolled products total.
Compilation: THE IRON AGE.

Production time reduced by 53%

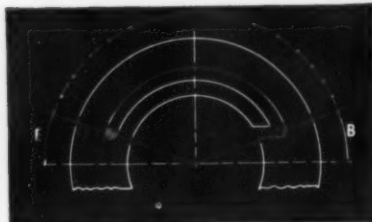


(A) 6" (B) 4 1/2" (C) 3 1/4"
(D) -1" + .000
(E) -1" + .005 (F) 3/8"



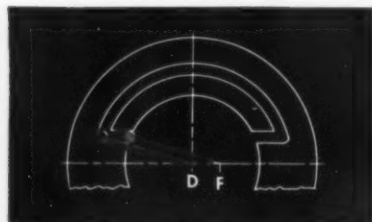
OPERATION 1 — Rough mill one side of tongue.

PROCEDURE—Offset spindle slide radius (A), set rotary head to angle (B), feed table to work-piece centerline (C to D).



OPERATION 2 — Rough mill radius section between tongue.

PROCEDURE — Rotate head from angle (B) to angle (E).



OPERATION 3 — Rough mill one side of opposite tongue.

PROCEDURE — Feed Machine table from (D) to (F).



OPERATION 4 — Rough mill end of tongue.

PROCEDURE — Feed machine saddle from (F) to (G).



PRODUCTION DATA

MATERIAL — SAE 4615.
CUTTER—1/4 dia.—2 lip—HSS endmill.
SPINDLE SPEED — 600 rpm —
(80 sur. ft./min.)
LOT SIZE — 25 to 50 pcs.

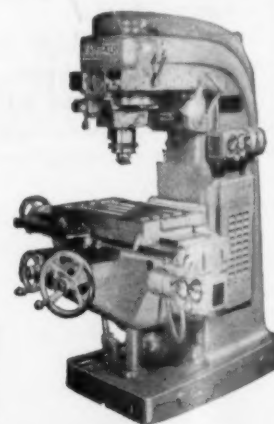
Rotary Head Milling Machine simplifies method, cuts costs on still another production job.

IN the production milling of this Quick Change Clamp Collar, considerable savings were effected by using a Kearney & Trecker No. 2 Model D Rotary Head milling machine. The entire milling operation on each piece required less than 16 minutes and still maintained the prescribed accuracy. Previous time was 34 minutes.

The job was done faster on the Rotary Head machine than would be possible with any other method. The radii were produced merely by offsetting the spindle slide and rotating the machine's head. The straight surfaces were milled by moving the table and saddle, both of which are independent of the head setting. Only one cutter was used in this

single set-up. Think of what this means not only in this job, but also in terms of increased range of operations for other work.

Get the Rotary Head Milling Machine Production Idea Booklet. It contains several examples of how this method has been found exceptionally efficient in solving production problems. It's yours for the asking. Write Kearney & Trecker Corp., 6784 W. National Avenue, Milwaukee 14, Wisconsin.



OPERATION 5 — Rough mill second half of inner contour.

PROCEDURE — Repeat Operations 1 through 4, working area to be in the lower half of opening.

OPERATION 6 — Finish mill 4 1/2" dia., end of tongues to 3 1/4" dimension and width of tongues to 1" + .000 — .005.

PROCEDURE—Reverse sequence of Operations 1 through 5.



KEARNEY & TRECKER
MILWAUKEE
MACHINE TOOLS

Machine Tool High Spots

Tool, Diemen Meet Market Shift in High

Civilian orders flood tool and die shops . . . Ratio of defense business drops from 80 pct to 40 pct in 6 weeks . . . New tool orders continue upward climb—By E. C. Beaudet.

Tool and diemakers throughout the country are enjoying an upsurge of civilian business which is offsetting the slowdown of the government's defense program. From a ratio of 80 pct defense and 20 pct civilian tooling 6 weeks ago, the average breakdown in tool and die shops today is 40 pct defense and 60 pct civilian business.

Areas like Detroit, Cincinnati, Providence and Milwaukee report civilian tooling particularly predominant. Defense orders in these areas are running under 25 pct of the total order volume.

The sharp reduction in armament tooling and the increase in civilian demand was reported at the annual meeting of the National Tool & Die Makers' Assn. in Washington last week.

Report Order Flood . . . Contract tool and die shops are receiving a flood of new orders from automotive, appliance and business machine manufacturers which indicates these industries will be straining for a greater share of the consumer dollar with newer, better and cheaper products.

Intensive design competition will characterize these industries during the latter part of 1953 and throughout 1954.

Sound Warning . . . In the midst of this flowering civilian demand, a warning was voiced to defense planners to keep the special tooling industry healthy. J. J. DeMuth, tool and die consultant to the National Production Authority, stated that this country will never be any stronger than its ability to produce special tooling for end products that are needed in a hurry in the event of war.

Atomic energy, radar and jet engines are so complex, he said, that we cannot afford to fall back for any length of time and hope to get into mass production quickly. Without active tooling facilities, the biggest reserve of machine tools would be useless.

New Orders Mount . . . Coupled with the bright outlook for the tool and die industry is an increase in new orders for machine tools. Forecasts of a decline in sales volume for the industry were pushed another month into the future, as business during March continued the upward trend which started at the end of last year.

Principal factor behind the increase in new orders is the growing amount of civilian business being booked by the builders. Whether this will be sufficient to ballast the industry once the buying flurry occasioned by relaxation of government controls has passed, is still speculation.

Index Climbs . . . Heartening preliminary figures released by

the National Machine Tool Builders' Assn. show the new order index for machine tools rose from 282.1 in February to 323.5 in March. Shipments continued at a high rate of 376.0 as compared with February's 354.5.

The increase in new orders still was not sufficient to prevent another dip in overall industry backlogs which are now averaging 8.6 months, slightly less than the 9-month backlog in February.

Future Is Uncertain . . . In spite of the continued rise of new orders, the outlook for most of the industry remains uncertain. Whether civilian buying can continue to offset government cutbacks in defense procurement of machine tools remains to be seen.

Cutbacks in government defense programs are a two-fold threat to the machine tool industry. They reduce the number of new orders for machine tools and also increase the number of government-owned tools that are not being used to capacity.

Are a Hazard . . . These government-owned tools present a hazard to future business since there is always the possibility that they will be sold on the open market at sacrifice prices. At present most of the government-owned machine tools are not being used at 100 pct capacity, say some sources.

Rated government orders on builders' books fell from 54,000 units in February to 25,000 in March. They are expected to continue declining at the rate of 2500 to 3000 a month until July. By this time about 15,000 rated units will be left in the backlog. These will be mostly large, heavy machine tools requiring a long lead time.

The long lead time required to make these items will bring some stability to the rated order backlog. After July it will probably remain at the 15,000 unit throughout the rest of the year.





"What's so unusual about miking a gear?" you may ask.

We'd have to answer, "Nothing . . . in most cases."

- But when we talk about miking the pitch diameter over wires, of a big case hardened spur gear which must have a Rockwell hardness of 60, and be held to a very close tolerance, we get down to the finer art of gear making.
- BRAD FOOTE has made tens of thousands of the gear illustrated above, on a long contract run. They are subject to rigid customer inspections, and the percentage of acceptance is exceptionally high. Because of few rejections, production costs are lower. So are the costs to the customer.
- Making gears today is no ordinary job. It's a highly specialized business with new techniques that far outdistance methods used only yesterday. Many of these techniques leave no mark visible to the eye when the gear is first examined. But as the service life increases, the value of modern methods becomes apparent.
- Here at BRAD FOOTE we employ every new technique and modern method that has been proved to increase the life of the widely diversified gears, gearmotors, reducers, and transmissions which we design and manufacture. That's why you can order from us with confidence that our products will serve well in your shop or plants, or on the equipment you make for others.
- Avail yourself of the complete facilities and services offered only by BRAD FOOTE. Send your specifications for quotations, or tell us about the job and let us design what you need.

BRAD FOOTE GEAR WORKS, INC.

1309 South Cicero Avenue • Cicero 50, Illinois
Blshop 2-1070 • OLympic 2-7700

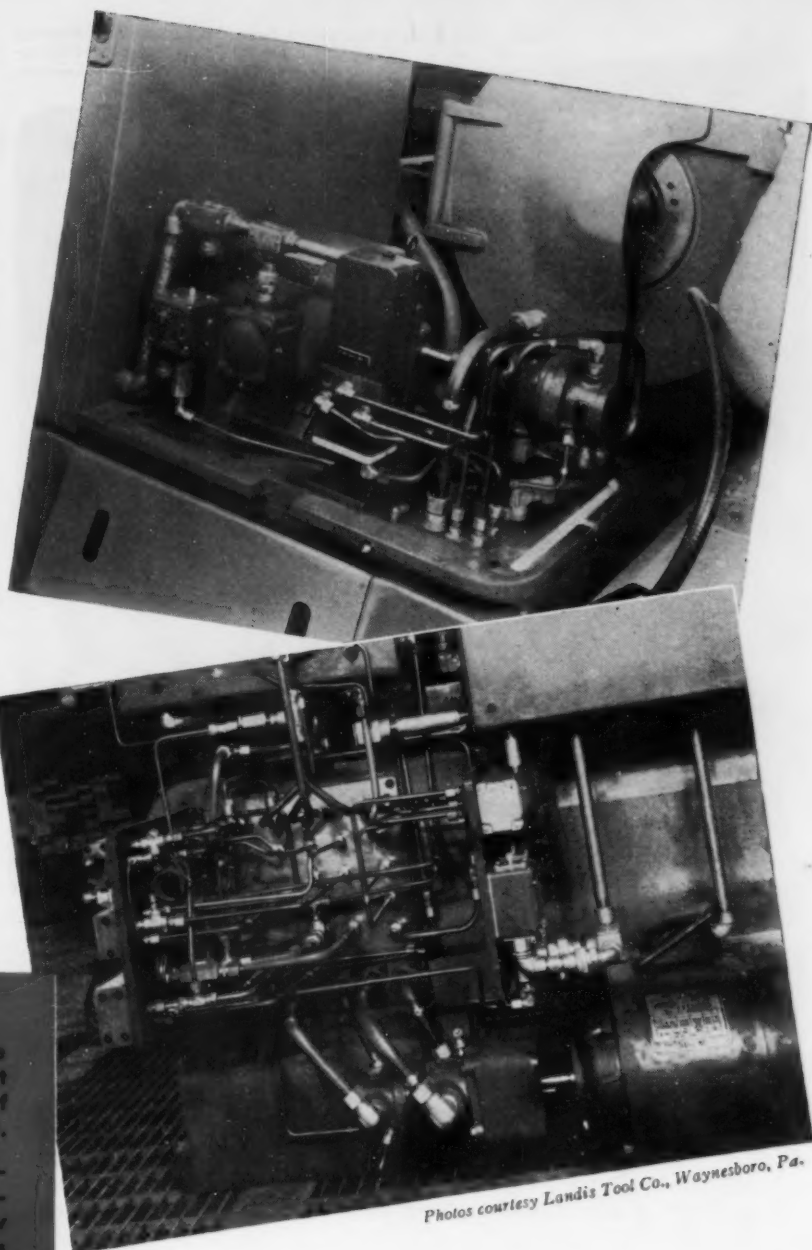
subsidiaries

AMERICAN GEAR & MFG. CO. • PITTSBURGH GEAR COMPANY
Phone: Lemont 920
Lemont, Illinois
Phone: ATlantic 1-9950
Pittsburgh 22, Pennsylvania



CHECK ✓ THESE GOOD REASONS FOR USING SUMMERILL HYDRAULIC TUBING ✓

- ★ Summerill Tubing is made in the nation's most recently built plant for the exclusive production of cold drawn seamless steel tubing.
- ★ The latest methods and equipment are used. Always a standard for quality, Summerill is now shipping the finest tubing in its history.
- ★ Only selected raw material—the very best—is used to make Summerill Hydraulic Tubing. It is a true premium product, made in accordance with JIC Standards for tubing in industrial equipment.
- ★ Every length is closely inspected and rigorously tested before shipment to assure uniform physical characteristics and hydrostatic qualities; ends are flared to be sure of ductility, etc.



Photos courtesy Landis Tool Co., Waynesboro, Pa.

Illustrated above are typical examples of the use of Summerill cold drawn seamless steel tubing in the hydraulic pump hook-up and control lines of modern machine tools.

In this field, as in many others where liquids must be conducted under high pressures reliably, the trend today is toward the use of steel hydraulic tubing exclusively. It is safer, stronger—won't break at stress points, bends, etc., yet handles and works easily and is simple to fabricate.

Summerill's new plant and progressive methods bring you hydraulic tubing at its best, in a full range of carbon steel sizes from $\frac{3}{16}$ " to $1\frac{1}{2}$ " O.D. • Let us quote on your requirements. *Summerill Tubing Company Division, Columbia Steel & Shafting Company, Pittsburgh 30, Pa.*

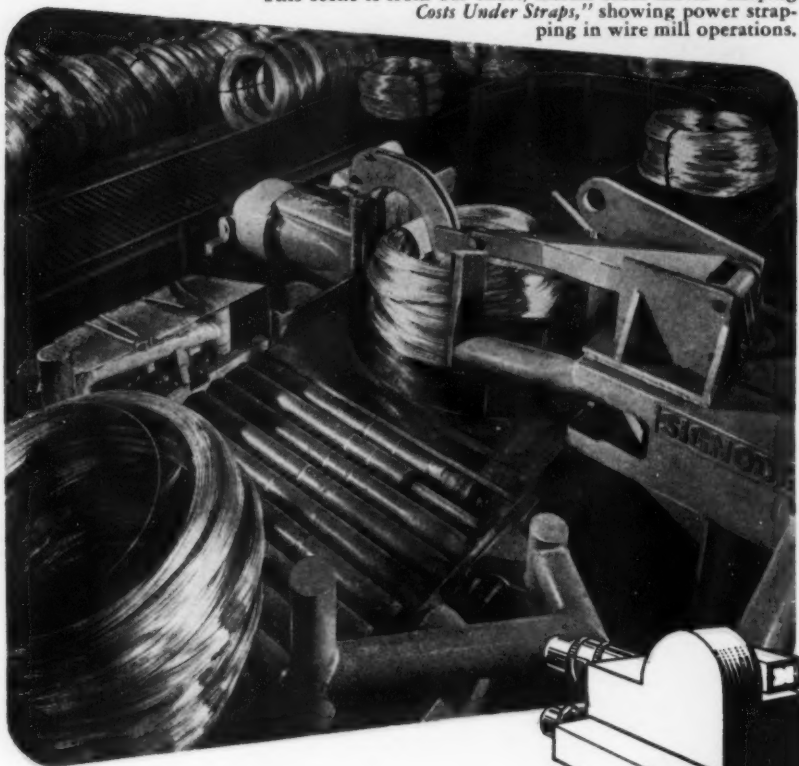
W&O 4273



IN COLD DRAWN SEAMLESS STEEL TUBING

SPECIFY *Summerill* AND BE SURE!

This scene is from our short, factual color movie "Keeping Costs Under Straps," showing power strapping in wire mill operations.



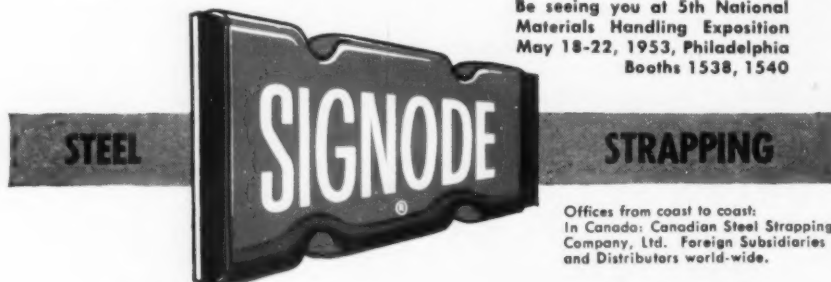
Profit has its picture taken

● *Power strapping* has proved a profit maker. It saves time, steps up production all along the line, and permits better use of available manpower.

If you are doing some hard-headed thinking about cutting operating costs, it will be well worth-while to learn how *Signode Power Strapping Machines* can help your plans for greater economy—more profits.

The scene above is rapidly becoming familiar in well-managed strip mills. Coils of wire are being packaged for safe, easy handling by *Signode Power Strapping Machines*.

Signode Power Strapping Machines are built and installed to specific production line requirements. To give our mill specialist time to draw plans that show you how these machines can be integrated in your set-up, invite him to meet with your production executives *now*. Set the date for your convenience. Write, J. M. Moon, V. P., Director of Sales, Signode Steel Strapping Co., 2623 N. Western Ave., Chicago 47, Illinois.



Be seeing you at 5th National Materials Handling Exposition May 18-22, 1953, Philadelphia Booths 1538, 1540

Offices from coast to coast: In Canada: Canadian Steel Strapping Company, Ltd. Foreign Subsidiaries and Distributors world-wide.

ANOTHER TESTED AND APPROVED SIGNODE APPLICATION

Free Publications

Continued

Rails

Any firm that uses trackage will be interested in the new catalog published by L. B. Foster Co. Illustrations of rail sections in the catalog are in profile, complete with design dimensions, all in full scale for use in comparison with actual or sample sections, or for tracing drawings. Angle and splice bars are illustrated on each section from 12 lb to 155 lb inclusive and on crane rail sections from 104 lb to 175 lb. *L. B. Foster Co.*

For free copy circle No. 14 on postcard, p. 71.

Desk calculator

As a convenience for engineers, Pangborn Corp. has made available a pocket-size desk calculator containing easy-to-use form formulas, constants and conversion factors useful in basic engineering, blast cleaning and dust control calculations. Included are geometric relationships for circles, squares, cylinders, spheres, pyramids, cones and trapezoids; measures of pressure; and calculation guides for determining tank capacities in gallons. *Pangborn Corp.*

For free copy circle No. 15 on postcard, p. 71.

Rolling mill drives

General Electric has released a new 12-p., two-color bulletin on auxiliary drive equipment for rolling mills. The publication points out the highlights and benefits of GE drive-engineering with special emphasis on the importance of sound auxiliary drive systems in helping to increase the tonnage of steel mills. *General Electric Co.*

For free copy circle No. 16 on postcard, p. 71.

Electronic controls

Minneapolis - Honeywell's Catalog 1530 contains 56 fact-filled pages describing all types of ElectroniK control units which are used to measure and control many process variables. Included are detailed specifications and control action descriptions and ratings for both electric and pneumatic type controllers. *Minneapolis - Honeywell Regulator Co.*

For free copy circle No. 17 on postcard, p. 71.

WHEN YOU WANT THE MOST STRENGTH WITH THE LEAST WEIGHT USE A TUBE

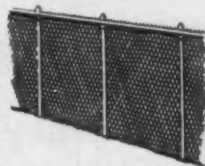
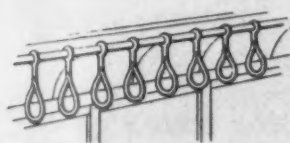
• Why? Because, in proportion to size and weight, a tube is the *strongest structural form you can buy*. That's why NATIONAL Electric Welded Tubing is a natural for playground equipment, bicycles, baby carriages, lighting fixtures, furniture, seat frames, fence posts, guard rails, and hundreds of other mechanical applications, including automobile tail pipes, shot hole casing and flue tubes for water heaters.

If you are looking for a good commercial quality, mechanical steel tubing that will give you true economy without sacrificing quality and reliability in the finished product, you'll find it in NATIONAL Electric Welded Tubing. Made by the world's largest manufacturer of steel tubular goods, it is available in sizes up to and including 4" O.D.

Send your inquiries for NATIONAL Electric Welded Mechanical Steel Tubing to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

NATIONAL TUBE DIVISION
UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.
(Tubing Specialties)

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

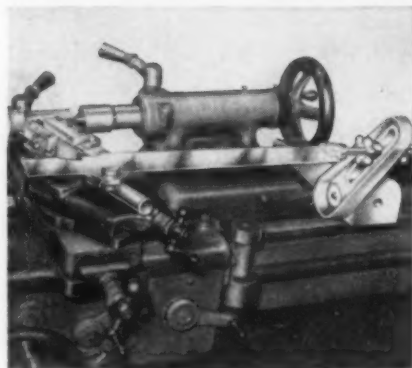


NATIONAL Electric Welded MECHANICAL
STEEL TUBING

UNITED STATES STEEL

NEW EQUIPMENT

New and improved production ideas, equipment, services and methods described here offer production economies . . . just fill in and mail the postcard on page 71 or 72.

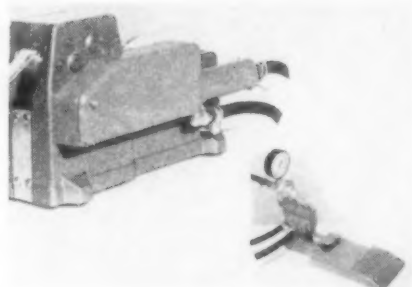


Pro-Tracer does duplicating with engine lathes

The new Pro-Tracer is a simple, compact, inexpensive profile tracing attachment said to be virtually foolproof and break-down free. Its heavy duty construction enables small shops to produce sizable quantities of turnings, impossible previously because of limited facilities. Model EL-1100 is designed for lathes handling up to 13-in. work. Installation or removal takes only

a few minutes, and no alterations to the lathe are necessary. Different applications include boring, turning ID contours, OD turning including tapers; profile facing, and internal and external threadings. A lathe equipped with the Pro-Tracer can be operated by semi-skilled labor. *Lehigh Foundries, Inc.*

For more data circle No. 18 on postcard, p. 71.



Air-operated dispenser for pressure sensitive tape

Speed, accuracy and power characterize this automatic air-operated tape dispenser. It is adjustable for various lengths and types of tape. Foot pedal control reduces dispensing time to zero and delivers tape automatically at the same

position every time. The operator quickly learns to grasp tape without taking eyes from work, increasing production and improving quality of workmanship. The dispenser attaches to any factory air line. *Air Fixtures, Inc.*

For more data circle No. 19 on postcard, p. 71.

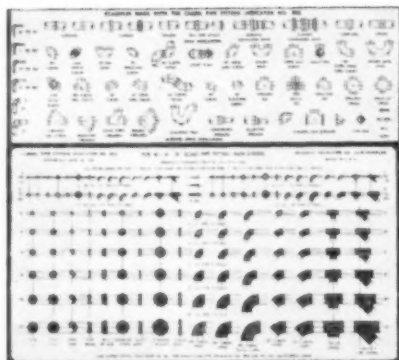


Power-driven tables turn autos, bulky products

Industrial turntables equipped with positive self-aligning mesh gear drives are made in diameters up to 8 ft and capable of capacities up to 10 tons. Features include totally enclosed gear reduction unit, anti-friction bearings throughout, remote pushbutton controls for forward, stop and reverse action,

and easily accessible lubrication fittings. Pit depths of 15 in. are needed to install the turntable flush with the floor. A solid band of steel circling the table eliminates the need for forms when pouring concrete around the unit during installation. *Chase Foundry & Mfg. Co.*

For more data circle No. 20 on postcard, p. 71.



Convenient pipe fitting indicator saves time

Pipe fitting indicator No. 253 is a drafting template for the engineer, designer and draftsman. It is made to scale for professional use; conforms to all pipe line graphic standards; can be used for over 2000 combined quick and accurate pipe fitting indications. This drafting template indicates $\frac{1}{8}$ to 12-in. ID pipe fittings in scales of $\frac{1}{8}$, $\frac{1}{4}$ and $\frac{1}{2}$ in. It simplifies detailing,

general layout and designing all double line industrial and commercial pipe line systems where various sizes and types of pipe connections are used. Actual size of indicator is $5\frac{3}{8} \times 9\frac{7}{8}$ in., made of rigid translucent plastic that stays flat with a no-glare and non-slip surface. *Graphic Indicator Co.*

For more data circle No. 21 on postcard, p. 71.

Turn Page

Pour
ingot
moulds
RIGHT
in the pit

**WITHOUT
ASSISTANCE
OF CRANE**

WITH...



GANTRY LADLE CAR

relieves the "bottle-neck" caused by limited crane capacity

The 85-ton Gantry Ladle Car pictured is "paying off" in an eastern steel mill by speeding up pouring and improving plant efficiency. You can save time and money by using this modern economical method of increasing tonnage output.

✓ these features

- ☐ Designed to Suit Your Ladle
- ☐ Sturdy Construction Throughout
- ☐ Positive, Simple, Push-Button Control
- ☐ Electric Motor Driven
- ☐ Moves on Track over Pit
- ☐ Roller Bearing Wheel Journals
- ☐ Easy and Economical to Operate

The Youngstown Foundry & Machine Co.

OVER SIXTY YEARS OF SERVICE TO THE STEEL INDUSTRY

Youngstown, Ohio

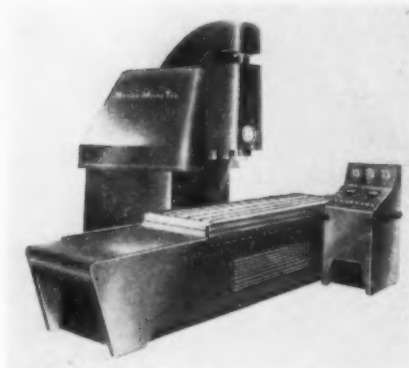


19

77

New Equipment

Continued

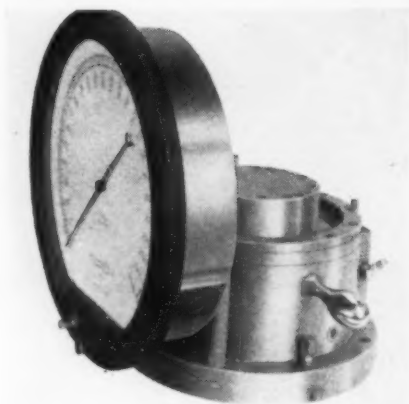


Vertical mill has precision leveling table

The Hydro Micro-Tel is a precision master vertical mill and precision tracer-profiler. A feature is an automatic dynamic support leveling which levels the table and keeps it level automatically with the removal of metal. This is accomplished through air-hydradyne jacks and sensitized leveling support. Gibs automatically lock by the air hydradyne system and must be re-

leased by a dial before they can be moved. Desired pressure can be exerted on the gibs, while in movement, to give the closest possible tolerances. The machine is said to be capable of hydraulic tracing accurate to 0.001 in.; electronic tracing or profiling accurate to 0.0002 in. and depth control to 0.0001 in. *DeWitt Lewis Co.*

For more data circle No. 22 on postcard, p. 71.

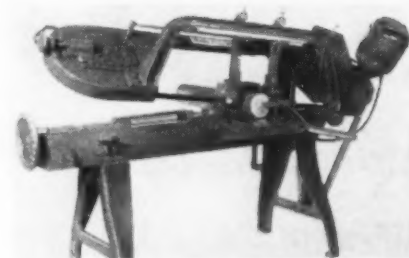


Weighing units permit on-the-job measurement

A new line of self-contained, portable hydraulic weighing units, accurate to 0.1 pct of scale, are available in sizes up to 50 tons. They permit laboratory-accurate force measurement anywhere in the plant and on the job. Portable units are available in 24 ranges from 0-500 lb to 0-100,000 lb, with four load cell sizes and a choice of 8½, 12 and 16-in. indicators. Each unit

contains an Emery load indicator mounted directly on a hydraulic force-measuring cell. Simplified construction makes it rugged enough to stand up under the roughest in-the-field handling and specially designed handles make the unit truly portable. Accuracy in use is guaranteed to be within 0.25 pct of full scale. *A. H. Emery Co.*

For more data circle No. 23 on postcard, p. 71.



Band saw uses high speed steel blade

New horizontal band saw is designed for use with Milford Re-zistor high speed steel band saw blades, providing greater cutting efficiency and more cuts per blade, particularly in cutting stainless steel. Model 800 has heavy duty counter-balance frame and beam.

New style band wheels permit use of 1-in. wide blades. Constant-load blade tensioning device and synchronized speed blade cleaning brush are other design features. Capacity of machine is 8-in. diam. *Wells Mfg. Corp.*

For more data circle No. 24 on postcard, p. 71.

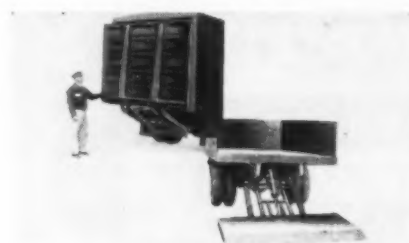


High magnification is feature of air gage

New P&W Air-O-Limit comparator is furnished with either 10,000 or 5000X magnification; has a larger gage dial and uses long wearing standard gaging plugs. Magnification is obtained by the use of an amplifying unit in conjunction with an adjustable restriction and large indicating dial. The larger dial, 5 in. in diam with linear graduations increased to 180° and arc length

increased to 8 in. is used on the comparator for greater ease in reading. The swivel mounted and easily positioned meter is the high speed type with the Bourdon tube liquid-filled for high speed, dead beat action. The instrument permits operation at high magnification with gaging plugs that produce long wearlife. *Pratt & Whitney.*

For more data circle No. 25 on postcard, p. 71.



Control system on lift gate uses single cylinder

New safety, simplicity and lighter weight are improvements on 4000 and 2000-lb capacity lift gates for motor trucks. A single lever control utilizes the power of a single lift cylinder both to lift a load and to power-close the gate. Safety-

matic control stops gate instantly should the operator for any reason remove his hand from the control lever. Models have all-steel platform. *Anthony Co.*

For more data circle No. 26 on postcard, p. 71.

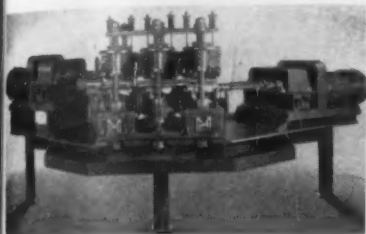
Turn Page

New Equipment

Continued

Rotary straightener

In the improved rotary straightener AX its two 3 hp motors and the drive spindles are mounted on a unit steel table. While bolt holes in table feet facilitate permanent installation, the complete unit can be quickly relocated as production requirements effect shop layouts. A circulating flood lubrication system



for the straightener's six driven rolls is an integral part of the machine design. Petroleum base liquid lubricant is directed at the points where tube or pipe is in contact with the rolls. This improves straightening, dissolves residue of the solutions used in drawing operations, washes away metal particles which might mar tube surface. Covers for the six drive spindle are an added safety feature. *Mackintosh-Hemphill Co.*
For more data circle No. 27 on postcard, p. 71.

Packing compound

Oxygen corrosion in pipe lines can be arrested and prevented with Molyseal, a self-molding packing compound which carries molybdenum sulfide as a non-oxidizing dry lubricant. The product is furnished in soft extruded Plasticks in various diameters, packed in 5-lb cartons. It is said to eliminate periodic repacking, as Molyseal will not leak or dry out in service. *Surveys, Inc.*

For more data circle No. 28 on postcard, p. 71.

Cam calculator

Practically all information needed in laying out a set of cams is contained on a new calculator. It consists of two circular logarithmic scales which revolve around a central pivot pin. It gives the answer directly to the correct decimal place. *Screw Machine Specialties Co.*

For more data circle No. 29 on postcard, p. 71.

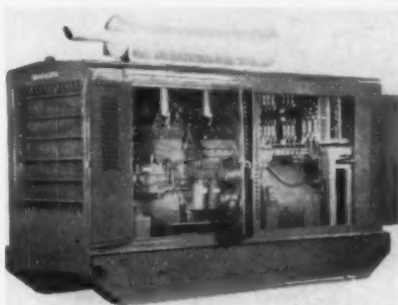
Cool grinding unit

With a cool grinding attachment, operators of tool room grinders can adapt the machines for wet grinding without the use of guards around the work. Atomized spray permits operation with the work clearly visible, eliminating need for splash guards or flow of coolant over the piece being ground. Rapidly evaporating, rust-resistant coolant is sprayed directly at the point of contact between grinding wheel and material. A portable cabinet houses the coolant container and motor compressor which operates from 110 v. Pressure of spray is controlled by valve on top of cabinet. Any commercial coolant, soluble in water can be used. *Reid Bros Co., Inc.*

For more data circle No. 30 on postcard, p. 71.

Large scale welding

Improved efficiency of large-scale arc welding operations for steel fabricating work in the field is claimed for a new 100 kw diesel-engine generator. The unit provides for simultaneous operation of a bank of seven welders, and can also power a 50 hp electric air compressor plus a drop-cord line for operation of power tools and emer-



gency lighting. Principal advantages include: Centralization of power source in a single unit for simplified control and maintenance; ability to maintain welding efficiency at great distances, assuring a continuous bead and avoiding bubble formation when tack is broken; and portability of rectifier. The unit is powered by an International Harvester Diesel engine. *Ready Power Co.*

For more data circle No. 31 on postcard, p. 71.

Turn Page

P&H OVERHEAD CRANES



Electrically Better, Too!

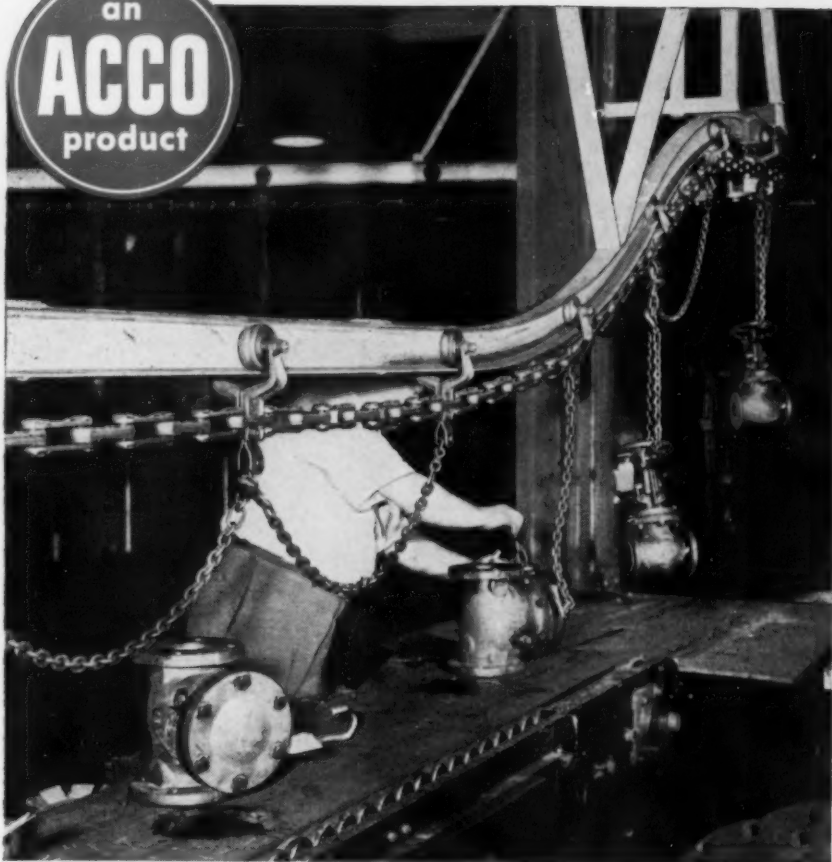
Structural strength? You can take that for granted. But look closely to the electrical equipment. That's the important factor in overhead crane service. That's why P&H builds its own electrical equipment — designed exclusively for crane operation, not adapted for it. Experience is the reason for P&H leadership — experience in building and servicing more than 18,000 electric cranes — far more than any other. You make no mistake when you let P&H build the entire crane — and take the complete responsibility for service.

Write for
Bulletin C-6

P&H OVERHEAD
CRANE DIVISION

HARNISCHFEGER
CORPORATION
MILWAUKEE 46, WISCONSIN

P&H MAGNETORQUE®
AC Crane Control provides
the finest known speed-
load characteristics.



How **AMERICAN** Chain Simplified Flow of Material

• Valves had to be moved from the testing department on the second floor to the ground level. A conveyor system could move the material but attachment of widely different sizes and shapes of valves slowed up the job.

The **AMERICAN CHAIN** man suggested 150 lengths of $\frac{1}{4}$ " steel loading chain with No. 42 **ACCO** grab hooks. This light, strong, highly flexible chain permits looping through the handle, around a flange, or even through open parts of the valve. Now in a matter of seconds, any valve is securely fastened for the trip down to the lower level.

Here is a simple, effective use of chain which saved money. Perhaps you have a similar problem, or a use for one of hundreds of welded or weldless chains made by **AMERICAN**. Whatever your chain need, bring your problem to **AMERICAN** which makes America's most complete chain line.

Your **AMERICAN CHAIN** distributor stocks many styles and sizes, and can get any others for you. He knows chain. He can save you money. Call him today.

ACCO



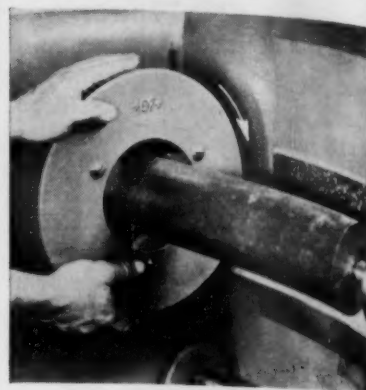
**AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE**

York, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles,
New York, Philadelphia, Pittsburgh, Portland,
San Francisco, Bridgeport, Conn.

**American
Chain**

—New Equipment—

Continued



Lathe work drivers

The George Fisher work driver replaces work dogs. It consists of three eccentric jaws (6 on largest size) which have floating spring action to accommodate smooth or rough bars and forgings. A smooth protective hood covers all mechanism and acts as a manual opening and closing device for the jaws. Any increase in tool pressure and spindle speed automatically increases the holding power of the driver. Five sizes give wide work diameter range. *Skinner Chuck Co.*

For more data circle No. 32 on postcard, p. 71.

Blackening compound

Ferrous metal blackening compound known as Dulite 3-0 Black, is particularly effective for stainless steels, will produce a non-fading black finish quickly and easily on malleable iron. It needs no special equipment. Operating temperatures for processing with Dulite 3-0 are exceptionally low, the maximum involved being 240°F. Compound is supplied in dry salts form which may be mixed as needed. *DuLite Chemical Corp.*

For more data circle No. 33 on postcard, p. 71.

Cutter grinder dog

Versatility of a new cutter grinder dog permits its use in work that formerly required as many as four dogs. The grinder dog is adjustable to different diameters of work. Is perfectly balanced and expressly designed for cutter grinders. Two sizes have capacities of $\frac{1}{8}$ to $1\frac{1}{2}$ in. and $\frac{1}{2}$ to $2\frac{1}{2}$ in. respectively. *Ready Tool Co.*

For more data circle No. 34 on postcard, p. 71.

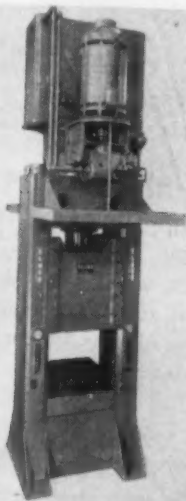
Oil burner controller

Special protection for oil-fired heating equipment, and automatic control of operation, is afforded by a new C-502 oil burner controller. The controller, mounted in the stack, automatically starts the oil burner in response to thermostat demands, and keeps the burner running as long as heat is needed. A built-in safety switch gives complete protection against ignition or flame failure. If the power supply lapses, the controller automatically recycles and begins normal burner operation as soon as power is restored. *Iron Fireman Mfg. Co.*

For more data circle No. 35 on postcard, p. 71.

Shell-forging press

An Elmes 500-ton hydraulic drawing and forming press is designed for cold drawing and nosing artillery projectiles. This shell-forging process represents a compromise between old hot forging methods and newest steel extrusion processes. The die space has been made smaller than standard, the intense pressure developed in this process



requiring less area. Smooth, quiet, shockless operation is due to pipeless construction. There is no piping in the main hydraulic circuit. All high pressure fluid is conducted through short, direct passages drilled in the structural parts. This press has two pipeless units for increased operating speed. *American Steel Foundries, Elmes Engineering Div.*

For more data circle No. 36 on postcard, p. 71.
Turn Page



How ACCO REGISTERED Stock Slings Save You Money—with Safety

- 1 • **You Get ALL the Strength You Pay For**—DUALOC* Endings insure against any loss in the catalog strength of the preformed Green Strand wire rope the sling is made of.
- 2 • **You Lower Your Sling Maintenance Costs**—If damaged, any part of the sling can be replaced in your own shop with another ACCO Registered part of equal strength. No delay. You don't ship the whole sling to have one part repaired.
- 3 • **ACCO Slings are Stocked by Your Industrial Supply House**—His stock is based on YOUR needs. So, your sling inventory can be held to a minimum since your distributor's stock is as close as your telephone.
- 4 • **These Slings and Fittings are "ACCO Registered"**—This assures you of highest quality and safety throughout.

Write today to our Wilkes-Barre office for name of the ACCO Registered Sling distributor nearest you.

*Trade Mark Registered. • Patent No. 2463199

ACCO



**WIRE ROPE SLING DEPARTMENT
AMERICAN CHAIN & CABLE**

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles,
New York, Odessa, Tex., Philadelphia, Pittsburgh,
San Francisco, Bridgeport, Conn.

**ACCO
Registered
DUALOC
Slings**

Try CLEVELAND Slotted-Type "Place Bolts"*

to solve vibration-point fastener problems



Profit by the economy and one-piece simplicity of this remarkable self-locking fastener

© Find out about Place Bolts *now!* New users and new uses are multiplying daily. A cold-forged fastener made of either high carbon or alloy steel, the Place Bolt head brings *elastic spring action* to bear on seating surfaces, combining with the elastic elongation of the shank to safeguard against loss of initial bolt-tension. Vibration-and-shock-proof holding power is assured. Sizes range from 1/4" diameter upwards, standard or special. Write today for our Place Bolt Folder.

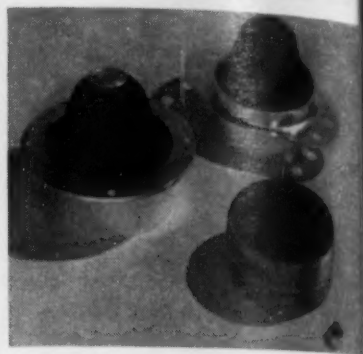
*Licensed under U. S. Patent No. 2543705.

CLEVELAND *Top Quality* FASTENERS

THE CLEVELAND CAP SCREW COMPANY
2917 East 79th Street, Cleveland 4, Ohio

originators of the Kaufman **DOUBLE EXTRUSION** Process

New Equipment Continued



Vibration isolator

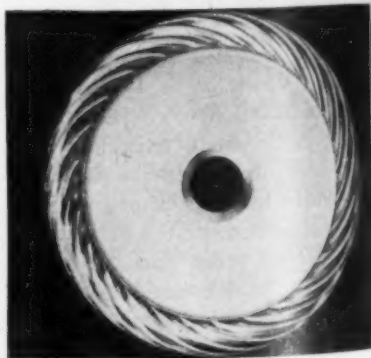
New shock and vibration isolator, called the Cohrlastic DS Non-Linear Mount, provides shock and vibration protection for electronic equipment, delicate instruments, aircraft engines and a variety of equipment which may suffer damage in use and in shipment. It also finds application as a shock mounting under heavy machinery which receives an occasional severe stress. The mounting has little tendency to develop resonant frequencies—continue to bounce after loading. Units are available from small 1/2 lb rated loads to large 500-1000 lb rated loads. Same basic principle of design and functionality applies to all sizes. *Connecticut Hard Rubber Co., Inc.*

For more data circle No. 37 on postcard, p. 71.

Helix milling cutter

New, high helix, shear type milling cutter has a cutting surface of more than 90°; is designed to mill compound contoured surfaces. The teeth are always in contact with the workpiece, clean themselves and impart a very smooth finish. *Douglas Tool Co.*

For more data circle No. 38 on postcard, p. 71.



Turn Page

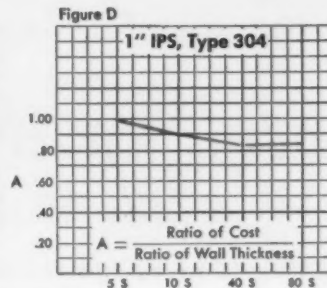
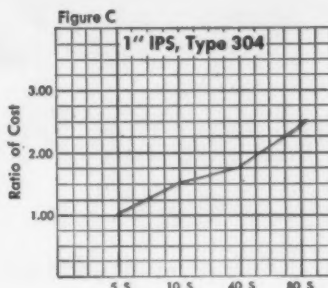
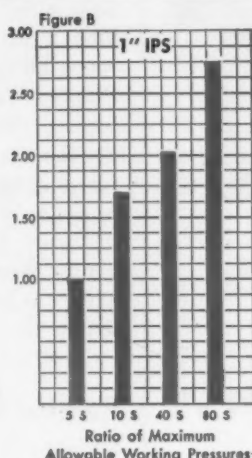
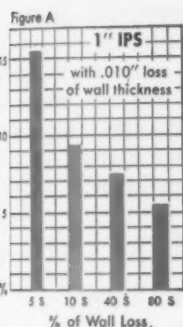
Take a closer look at

Stainless STEEL PIPE SIZE Schedules



Don't be "penny wise and pound foolish" where stainless steel piping is concerned. The most economical choice does not always imply the least initial cost as working pressure, methods of joining, installation costs and allowance for loss by corrosion

are critical factors. This is particularly true where costs resulting from failures in service—replacement of equipment and lost production due to down time—may exceed the initial cost of the piping.



CORROSION RESISTANCE

For long service life it is advisable to allow for some loss in wall thickness where stainless piping is employed to combat severe corrosion. As shown in Figure A even a small loss means an appreciable percentage loss of wall thickness in the lighter weight schedules.

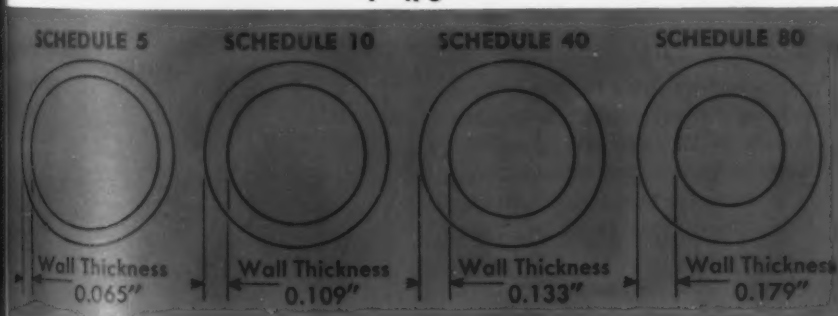
WORKING PRESSURES

As shown in Figure B, the heavier pipe schedules permit higher working pressures, thus perhaps permitting the use of smaller diameter piping, or offering greater flexibility for subsequent changes in operational procedures.

COSTS

Although the lighter schedules cost less, as shown in Figure C, you actually get more for your money with the heavier schedules because the ratio of increase in cost is less than the ratio of increase of wall thickness (Figure D).

1" IPS



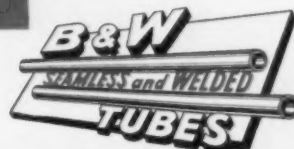
While various types of fittings are available for the lighter weight pipe schedules, they should be examined carefully as to initial cost, installation cost, working pressure permitted and ease of adaptation to existing lines.

Whatever your stainless piping problems, Mr. Tubes—your B&W Tube representative—can provide valuable assistance. Consult him for advice on the stainless piping or tubing that will afford optimum cost-life ratio under your service conditions.

Methods of Joining & Installation Costs

From the standpoints of economy and ease of installation, it is extremely important that attention be given to methods of joining, fittings, etc. because:

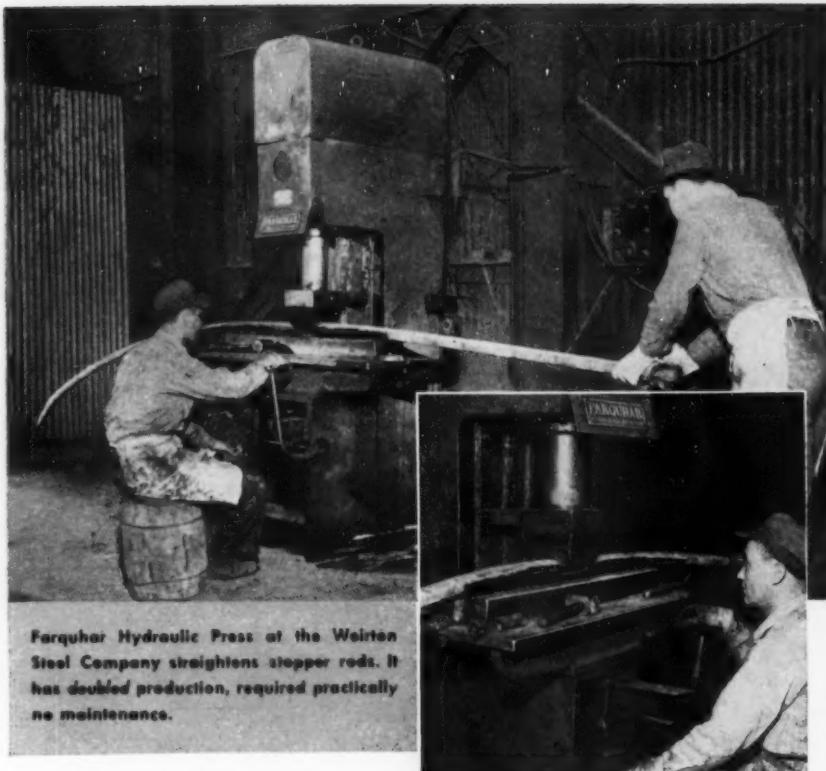
1. Schedule 40 IPS is the lightest weight pipe specifically designed for threading.
2. Fittings which provide a good thread and also afford structural strength at the joint are not commercially available for lighter weight pipe.
3. Field welding of thin wall pipe is difficult.
4. Misalignment of connections can cause high installation costs.



TA-1709 (G)

THE BABCOCK & WILCOX COMPANY TUBULAR PRODUCTS DIVISION

Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing



Farquhar Hydraulic Press at the Weirton Steel Company straightens stopper rods. It has doubled production, required practically no maintenance.

Farquhar Hydraulic Press at the Weirton Steel Co.

"eliminates breakage of rods...increases production 100%"

The Weirton Steel Co., Weirton, W. Va., formerly straightened stopper rods with a steam hammer. The operation was slow and resulted in a high percentage of breakage. Seeking a better method, Weirton officials bought a Farquhar Press to speed production. Not only has the press increased production 100%, but it has eliminated breakage of rods. In addition, Weirton reports that in the six years this press has been operating, "practically no maintenance has been necessary."

Farquhar Presses Cut Your Costs

Just one more example of cost-cutting Farquhar performance in modern production! Farquhar Presses are

built for the job... assure faster production due to rapid advance and return of the ram... greater accuracy because of the extra guides on the moving platen... easy, smooth operation with finger-tip controls... longer life due to positive control of speed and pressure on the die... long, dependable service with minimum maintenance cost.

Farquhar engineers are ready to help solve whatever production problem you may have. Send for free catalog showing Farquhar Built-for-the-Job Presses in all sizes and capacities. Write to THE OLIVER CORPORATION, A. B. Farquhar Division, *Hydraulic Press Dept.*, 1503 Duke St., York, Pennsylvania.

Farquhar

HYDRAULIC PRESSES

for Bending • Forming • Forging • Straightening • Assembling • Drawing
Extruding • Joggling • Forging • and other Metalworking Operations

THE OLIVER CORPORATION, A. B. FARQUHAR Division

New Equipment Continued

Spring pin

A self-locking, spring-pin fastener, called the Sel-Lok spring pin, replaces tapered, grooved and dowel pins in all kinds of assemblies. It is vibration proof, absorbs shock, is easy to insert and remove, eliminates expensive reaming operations. Pins are carbon steel, corrosion-resistant steel, copper and aluminum-based alloys. Plating available includes zinc and cadmium. *Standard Pressed Steel Co.* For more data circle No. 39 on postcard, p. 71.

Write-on labels

Self-sticking write-on labels combine a printed form and write-on space all on one quick-to-use label. Printed part tells if item is accepted, rejected or overhauled, whether to return to vendor, hold for inspection or rework. Write-on space is for the date, reason and initials. Labels are mounted on handy dispenser cards. They are filled out before application. *W. H. Brady Co.*

For more data circle No. 40 on postcard, p. 71.

Radial arm saw

Radial arm of the new Model GA machine is 1½ in. longer than the model GR. The roller head carriage, supporting the overhead cutting member, now rides on eight bearings. Four of the grease-packed, double row ball bearings are set at 90° vertical plane to ab-



sorb the extra upward thrust from rafter notching, compound angle cutting, etc. The other four bearings are set at a 45° plane to absorb the side thrust created through normal sawing action. *DeWalt, Inc.*

For more data circle No. 41 on postcard, p. 71.

The *Iron Age*

SALUTES

Dr. Alfred C. Neal

This economic-financial leader is a tireless booster of more New England industry projects.



AL NEAL is a transplanted Californian who has become a pillar of strength in New England. As first vice-president of the Federal Reserve Bank of Boston he is a progressive and respected economic-financial leader.

And as a prominent banker-economist he charms people with the same quiet, friendly manner he wore so well as professor of economics at Brown University. His modest, boyish grin (he's only 41) seems almost to apologize for a brilliant, analytical mind.

Al has won most renown as a booster of business and industry in New England. He operates on the theory that what's good for industry is good for his bank. If a project meets this test he backs it to the hilt, giving unstintingly of his time and talent.

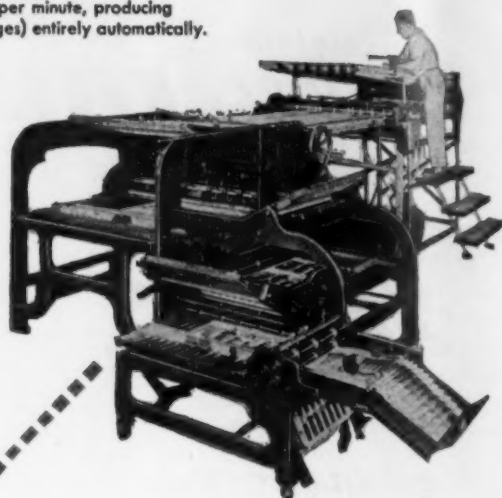
People in New England have come to depend on Al. Even professional industry boosters seek his opinions on economic and financial projects. On more than one question the balance has been swung by facts and figures developed by him. His economic studies and surveys have helped him build a reputation for knowing what he's talking about. He gets the facts.

As an authority on business economics, he is in demand as a speaker, has written several books. He has also served as a director of the New England Council, and has contributed much to New England's part in the National Planning Assn.

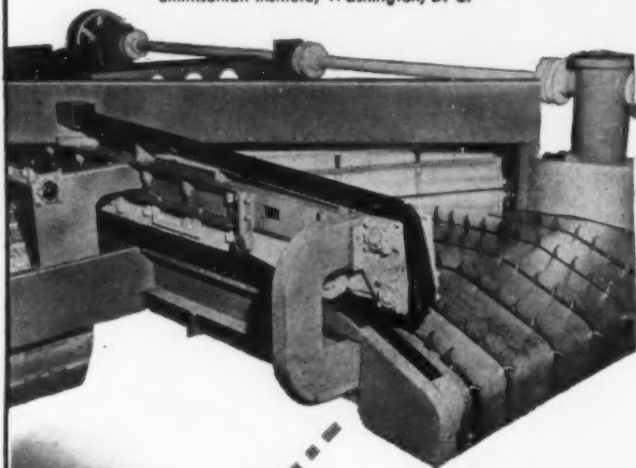
New Englanders swear by him, and we're inclined to agree.

The FIRST MODEL

A MULTI-FOLDING MACHINE, built by SEMCO to operate at the rate of 450 lineal feet per minute, producing 16 folds (32 pages) entirely automatically.



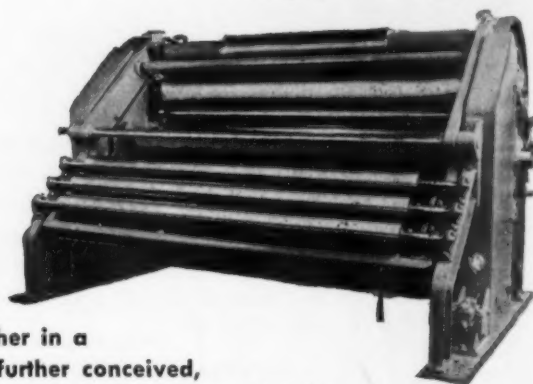
A RAMIE DECORTICATING MACHINE built by SEMCO, showing a "business end" view of the mobile unit that produces raw fibre from the fibrous RAMIE plant used for weaving into textile. Pictures of this machine in operation are considered of historical interest and are displayed in the Smithsonian Institute, Washington, D. C.



of industry's
high production
machinery

is often
**BUILT BY
SEMCO**

A SPECIAL PAPER COATING MACHINE built by SEMCO to a customer's specifications. Note the long rolls, ground for "kiss" contact throughout their entire length.



NEW MODELS — NEW IDEAS, whether in a visionary or concise state can be further conceived, designed, developed and built into finished machinery by the SEMCO organization. THIS IS A DIFFICULT FIELD, but the SEMCO organization has specialized in it for thirty-four years and thereby has become most proficient.

Write today for the SEMCO brochure
"Ready to serve you".

SEMCO

SERVICE MACHINE CO. INC.

150 Miller Street

Elizabeth 4, New Jersey

The Iron Age

INTRODUCES

Hugh C. Armstrong, elected president, WILLIAMS & CO., Pittsburgh; and C. C. Kleinschmidt, elected vice-president and assistant general manager. Mr. Armstrong succeeds Harold E. Williams, who has retired from active duties as president and has become chairman of the board.

Robert C. Overstreet, elected executive vice-president and re-elected secretary, TINNEMAN PRODUCTS, INC., Cleveland; and John E. Potter, elected treasurer.

Hermon L. Underhill, becomes assistant to the president, PIVOT PUNCH & DIE CORP., North Tonawanda, New York.

Leonard A. Stewart, elected to newly created position of director of engineering, Automotive Div., THE MOTOR PRODUCTS CORP., Detroit.

R. B. Creau, appointed administrative assistant to the president, Ingersoll Products Div., BORG-WARNER CORP., Chicago.

Harley C. Lee, appointed director, BASIC REFRACTORIES INC., Cleveland.

Robert S. Cooper, appointed superintendent of pipelines and compressor stations, TEXAS EASTERN TRANSMISSION CORP., Dallas.

Charles A. Simmons, Sr., elected chairman of the board, SIMMONS MACHINE TOOL CO., Albany; and Charles A. Simmons, Jr., elected president.

Charles B. Tillson, Jr., appointed superintendent, coal mine, Crucible, Pa.; CRUCIBLE STEEL CO. OF AMERICA.

Charles F. Vandekerck, appointed staff master mechanic, CHRYSLER CORP., Detroit.

John H. Jennings, named chief engineer in charge of all air-conditioning activities, SERVEL, INC., Evansville, Ind.

Dr. Gerald V. Kingsley, named research supervisor, BOHN ALUMINUM & BRASS CORP., Research Div.; and Edward O. Falberg, becomes production metallurgy supervisor.

Chauncey L. Sears, appointed manager, INTERNATIONAL HARVESTER CO., Chicago; M. H. Roth, is transferred to Seattle; and J. H. Baker, appointed manager, Columbus.

A. E. Wilson, appointed sales engineer, THE TIMKEN - DETROIT AXLE CO., Detroit.

Earl M. Muhleck, appointed chassis engineer, WILLYS-OVERLAND MOTORS, INC., Toledo.

W. W. Hurtt, appointed assistant chief engineer, TEMCO AIRCRAFT CORP., Dallas.

Joseph E. Rhoads, appointed service engineer, ENTHONE, INC., New Haven, Conn.

George C. Somes, Jr., named manager of sales promotion and merchandising, STANDARD PRESSED STEEL CO., Jenkintown, Pa.

Edward H. Mark, named works manager, SIOUX STEEL CO., Sioux Falls, S. D.

Alan S. Evans, Jr., named manager, coal chemicals division, PITTSBURGH COKE & CHEMICAL CO., Pittsburgh.

H. LeRoy Stout, becomes manager, Factory Dept., THE ENGINEERING & RESEARCH CORP., Riverdale, Maryland.

Gaylord F. Wirth, appointed district manager for eastern Pennsylvania and New Jersey, THE F. E. MYERS & BRO. CO.

Richard E. Dysart, becomes assistant manager, Louisville, REYNOLDS METALS CO.; and John Staley, appointed project director, Product & Market Sales Development Dept.



HORACE Y. BASSETT, named vice-president of operations, Calumet & Hecla, Inc., Chicago.



M. M. SCHRATZ, elected vice-president, Aluminum Co. of America, Pittsburgh.



LOUIS P. STRUBLE, JR., becomes vice-president, Dravo Corp., Pittsburgh.



.. or Released in an Instant



CLUTCH TYPE



INSTRUMENT MOUNTING



SPLINED TYPE



THIN TYPE



STANDARD

Faster assembly . . . no more failures of fasteners. GREER STOP NUTS hold firm against jolts, shocks, shimmy, wobbles . . . any vibration, any kind.

Bolt threads are gripped tightly . . . these famous nuts *never* work loose. Yet an ordinary hand wrench gives instant release. The tough, built-in GREERCOID collar does it . . . and seals against fluid leakage, too!

Study *your* fastener problem. Over 3000 types and sizes. Consult GREER. Proved on thousands of products. Meets gov't and military specifications.

Write
GREER STOP NUT CO.
2620 Flournoy, Chicago 12, Ill.



GREER Stop Nuts

Personnel

Continued

Joseph E. Lang, named manager, New York office, STONE CONTAINER CORP., Philadelphia.

J. V. McGuire, named sales manager, Switchgear Dept., ALLIS-CHALMERS MFG. CO.; George W. O'Keeffe and Clinton F. Kucera, made assistant sales managers.

Gilbert L. Holt, appointed works manager, Berwick, Pa., plant, AMERICAN CAR & FOUNDRY CO.

John V. Eakin, appointed general manager, Fawick Airflex Div., FEDERAL FAWICK CORP., Cleveland; and Theodore E. Metz, appointed advertising manager.

Robert M. Buddington, made an assistant general manager of sales, INLAND STEEL CO.; and Derrick L. Brewster, becomes manager, Chicago sales office.

T. G. Barnes, appointed general sales manager, FIRTH STERLING, INC., Pittsburgh.

Charles J. Linduska, appointed assistant to the sales manager, CLEARING MACHINE CORP., Chicago; and Howard W. Carlisle, also named assistant to the sales manager.

Albert G. Lindsay, named manager, Export & International Divs., ROCKWELL MFG. CO., Pittsburgh.

John Brandenburg, appointed central sales manager, American Mangane Steel Div., AMERICAN BRAKE SHOE CO., New York.

John R. Howell and Robert T. Dudley, appointed regional sales managers, STERLING ELECTRIC MOTORS, INC., Los Angeles.

Ray P. McAlister, appointed assistant to the general manager, H. H. BUGGIE & CO., Toledo.

Sherman J. Larsen, appointed sales manager, Architectural Products Div., BURGESS-MANNING CO., Chicago.

Robert J. Sanders, appointed salesman for the Greater Philadelphia area, KEYSTONE DRAWN STEEL CO., Pennsylvania.

Borje Rosaen, appointed sales manager, Hydreco Div., THE NEW YORK AIR BRAKE CO., Cleveland.

George Staub, appointed sales representative for the Metropolitan New York area, ALLOYS & PRODUCTS, INC., New York.



JOHN K. BEIDLER, elected vice-president, Dravo Corp., Pittsburgh.



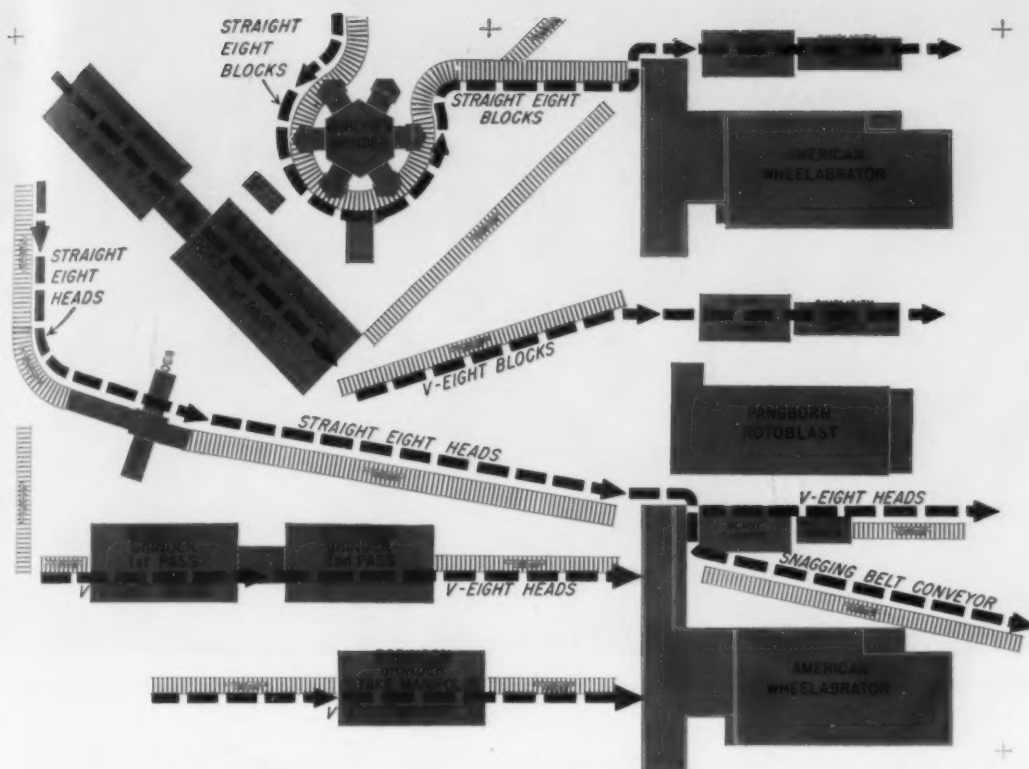
J. J. JEFFREY, becomes assistant to vice-president in charge of operations, Great Lakes Steel Corp.



EDWARD O. HASCALL, appointed director of purchasing, Ainsworth Mfg. Corp., Detroit.



WALTER F. HINKLE, appointed director of engineering and research, Acme Steel Co., Chicago.



MAJOR PIECES of equipment and conveyors in Buick's new casting cleaning plant. Parts move through blast cabinets, right, on separate conveyor systems.

Better Parts Flow Trims Foundry Costs



By **Herbert Chase**
Consultant
Forest Hills, N. Y.

- ♦ Modern concepts of continuous product flow guided plant layout engineers in setting up Buick's new casting cleaning plant.
- ♦ Belt and roller conveyors, air hoists, overhead hook and chain conveyors, rollovers, and small cranes keep engine parts moving smoothly.
- ♦ Grinding and cutting machines clean off flats on castings . . . Shot blasting cabinets handle blast cleaning of larger parts.
- ♦ Air-powered hand tools are used for many cleaning operations . . . Parts move past operators on conveyors.

♦ **CONTINUOUS PARTS FLOW** and improved layout of machinery in the new casting cleaning plant of the iron foundry of Buick Motor Div., General Motors, Flint, have increased cleaning efficiency and reduced cleaning costs. Housed in

MR. CHASE, engineer, former trade magazine editor and author of engineering texts is noted for his articles on the latest industrial developments.

a new building, and equipped with new machinery, the setup emphasizes smoothness of parts flow with minimum handling. The new plant, in contrast to the plant it replaces, is uncongested. The building was specifically designed for the job of cleaning castings.

Most cleaning operations are done on or along conveyors to minimize manual handling. Power driven hand tools are used effectively for certain



FIG. 5—Cylinder heads are cleaned along this section of conveyer. Head recesses are blasted individually.



FIG. 6—Air-operated hand tools play big part in cleaning castings as they are conveyed past operators.

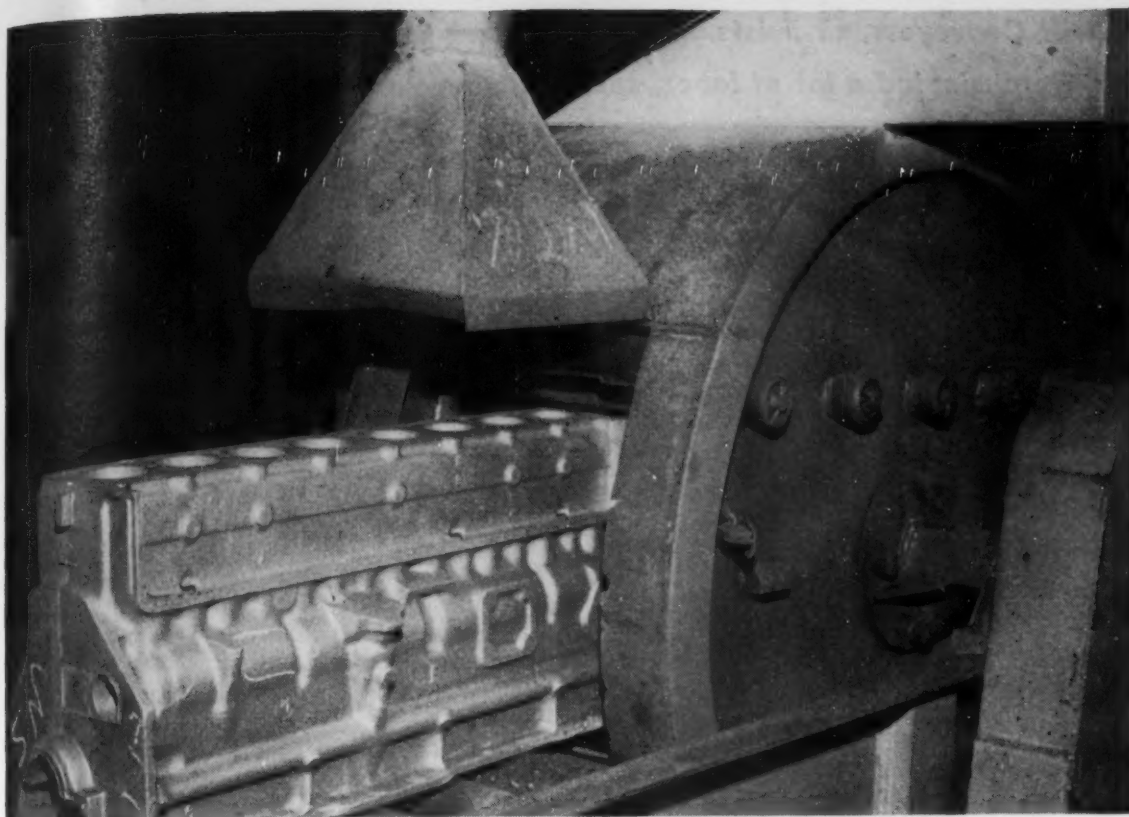


FIG. 7—Sand and other particles fall out when rollover inverts engine blocks. Suction fans remove dust.

and one left exhaust manifold casting for each engine.

Smaller manifold castings are cleaned in tumbling mills. The V-eight inlet manifold, however, is passed through a Robinson grinder for cuts over port faces and the carburetor flange face. Then the castings go through the same Wheelabrator that handles head castings, being loaded by hand, as in Fig. 4. Before the manifold goes onto the snagging belt, it is passed through a special blasting cabinet so arranged that shot is forced through inlet passages to make sure they are clean and that all sand is displaced.

After the smaller manifold castings are tumbled they are placed on the manifold belt conveyor. Each casting, during transfer to this belt, is hand-cleaned and ground as required. Manifolds with minor defects that can be repaired go to a welding booth. All manifold castings are sorted into groups near the end of the 261-ft belt and deposited in tote tubs for transfer to machining departments or to furnaces for annealing.

After cylinder blocks leave the main blasting cabinets, they are passed through blast cabinets. Here, passages not cleaned in the main cabinet, are shot blasted. At exit from these cabinets, blocks go onto parallel slat conveyers portions of which appear in Fig. 6. Most of the snagging done along these lines is with air-operated hand chippers and grinders.

Each cleaning conveyor for cylinder blocks has

rollovers, Fig. 7, at the start and end of the line. These invert the blocks so that loose sand and cut off fins drop out. Rollovers also save hand lifting and give access to the casting from all sides. Each operator along the cleaning conveyor has specific jobs to do on each casting that passes his station.

At certain stations, power driven tools are passed through holes to remove fins. For these operations, the blocks are rolled off the line and air clamped in a fixture. Tools are fed by hand or hydraulically to make the necessary cuts. In some setups, locating pads are milled off.

Before blocks leave the cleaning lines, they are water tested under pressure for leaks. If leaks are found and are at points where weld repairs can be made, defective blocks are transferred to one of two preheating furnaces. Here they are heated to a suitable temperature for arc-welding. After welding, the blocks are cooled and again water tested.

All castings are inspected before transfer to machining departments. Small castings that pass inspection are loaded in tote boxes or tow trucks. Large castings are chain conveyed to temporary storage. From storage they are transferred to machining departments as needed.

Both foundry and cleaning room are operated on schedules geared to general production requirements. Some "float" is maintained between foundry and machine shop but, as both departments follow general production schedules, a large float is not required.

Conveyers, air hoists and other modern handling devices have eliminated a lot of labor, speeded movement of castings . . .

types of work. Much cleaning, especially of large castings is done by shot blasting in five large closed booths. Hung on slowly rotating hooks, the castings are moved through the booths by overhead chains. Most small castings are effectively bulk cleaned in tumble barrels.

Dust and sand from cleaning operations are washed into a basement sump, Fig. 1, after passing a magnetic separator for iron removal. From the sump, sand and water are pumped to a lagoon. Air is washed free of dust before being exhausted from the building.

Most castings enter the building at its north-east corner from the adjacent foundry. Large castings are suspended from a chain conveyer. Smaller castings are trucked in and most of them

are dumped from tote boxes into tumbling mills along an aisle on the east wall. Some, such as manifolds, go to separate cleaning lines and others are unloaded from chain conveyers at a sorting bench. Many are then passed through one of the Pangborn Rotoblast enclosures or (as in the case of Dynoflow housings) through a special blasting cabinet.

All smaller castings, after tumbling or blasting (including some that go through a Besly grinder) reach two belts that parallel the east wall. Here they undergo conventional hand cleaning, much of which is done with air driven tools. From this belt, most of the castings go into boxes for transfer to machining departments. Valve tappet castings, however, are put on a separate sorting belt and passed through a centerless rough grinding operation before leaving the cleaning department.

Some rough machining here

Cleaning not only removes foundry sand, including that in cored openings, but takes out most fins. In addition, some rough machining is done, especially on exterior surfaces that must be flat or are needed for location in subsequent machining. Absence of sand and fins helps to prolong tool life and to promote cleanliness in machining departments.

Cleaning of large castings is done in part along five parallel conveyers that traverse much of the length of the building but, before entering these lines, most of the castings pass through Pangborn Rotoblast or American Wheelabrator shot blasting booths, positioned as shown in the floor layout, first page. Most of the large castings also undergo one or more other operations, such as snagging or rough grinding, before blasting is done.

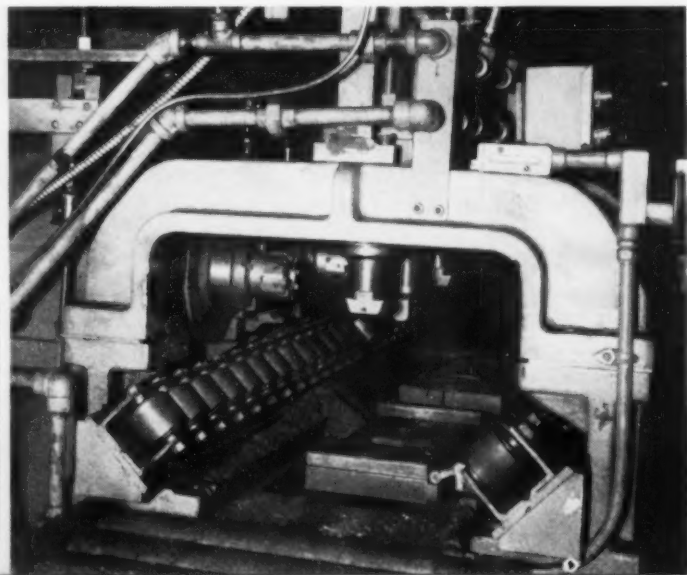
Operations prior to blasting vary according to the type of castings being processed. Largest of the castings are cylinder blocks. These include the eight-in-line blocks used for many years but now classified as "service" blocks because of the shift to the V-eight type block for 1953 cars. From now on, the proportion of in-line blocks will decline and the V-eight type will increase. Since both blocks will continue in production, the layout was designed to accommodate both types.

Cylinder blocks first go to a plate-top merry-go-round conveyer. Here many fins are knocked out and punches are passed through camshaft holes to remove fins. Air hoists on jib crane trollies remove castings from the foundry chain to the plate conveyer and from it to grinder conveyers. There is one rotary Gardner grinder for eight-in-line blocks, and two Robinson straight pass type machines for V-eight blocks. In the Gardiner grinder, blocks are advanced on



FIG. 1—Sand discharged from separator is washed in this sump. Mixture is pumped to settling lagoons.

FIG. 2—Looking into first of two Robinson machines which face surfaces on V-eight engine blocks.



a rotating table while both top and bottom faces are rough ground.

In the first of the Robinson machines, Fig. 2, cuts are made across the two ends and the bottom faces of V-eight blocks with the angular unfinished head faces resting on inclined rollers. Before passing to the second Robinson machine, Fig. 3, the block is inverted. The rough-machined bottom face is set on one of the fixtures that are advanced by a chain through the second machine. Inclined wheels rough grind the angular faces for the two heads.

From the grinders, blocks are unloaded automatically to roller conveyers along which they are moved to blasting machines. There, they are shifted by air hoists and hung on the hooks of overhead chains that carry the blocks through the blasting booths. These chains are above and outside the booths. Each hook carries a sprocket that engages a fixed chain and causes the hook and the casting it carries, to rotate slowly as it passes through the booth. Thus, all faces are exposed to the successive blasts of shot.

In each booth, the chain makes two parallel passes so that two rows of castings are exposed to the six streams of steel shot at all times. Each stream is aimed in a different direction so all exposed faces of the castings are cleaned. All streams are directed inwardly.

Castings on the two rows are staggered. Shot that passes between adjacent castings in the row nearest the wheels will, as far as possible, strike castings in the farther row. Thus, impingement on opposite walls of the booth is minimized and the shot performs a maximum of cleaning. Booth walls are protected by heavy rubber curtains. Shot and sand fall through a floor grating.

Picked up by air hoists

Each blasting machine is a self-contained unit and not only keeps the shot circulating but includes means for separating shot from sand and chips before shot is reused. Sand removed from castings is discharged below the floor. Air exhausted from the booths passes through dust collectors before being discharged from the building.

Head castings for in-line engines are passed through a Besly grinder that makes a cut across two sides in a single pass. For V-eight heads, two Robinson machines are placed in series and make three cuts, one across the flat face and two along manifold faces. After this operation, heads are transferred onto discharge roller conveyers. At the end of the conveyer, heads are picked up by air hoists and transferred to the chain that carries them through a Wheelabrator cabinet, Fig. 4.

After blasting, V-eight heads are passed through separate blast cabinets where shot is directed into openings not adequately cleaned in the prior blasting and then are passed over a Simplicity screen where sand and shot remaining in the head are removed. Heads then feed

onto a belt, Fig. 5, and are further cleaned with hand tools.

Heads are also passed through shot blast machines that direct shot into the combustion chamber recesses from hand-controlled nozzles. This blasting is done in cabinets, Fig. 5, not only to clean recess surfaces thoroughly but to remove any excess metal that would affect the volume in the compression spaces. Each space is gaged for depth before blasting to assure that the volume in each recess is the same.

Manifolds involve five different castings. One for inlet and one for exhaust are required in line engines. On the V-eight there is a heavy and compact inlet manifold that fits between the two banks of cylinders and feeds both banks. Exhaust manifolds for the V-eight are smaller and fit outside the cylinder banks. There is one right

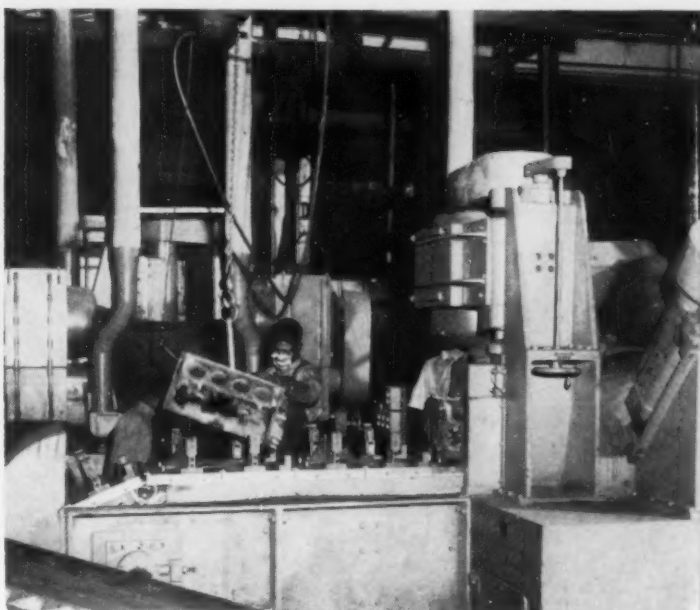
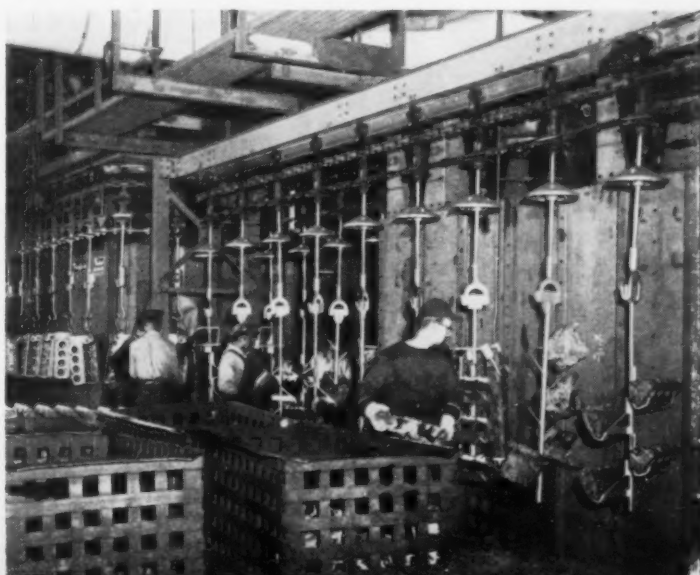


FIG. 3—Fixtures on chain move engine blocks through second Robinson machine where additional flats are cut.

FIG. 4—Castings are loaded on conveyer hooks for trip through blasting booths. Sprockets rotate hooks.



Painted slip rings—

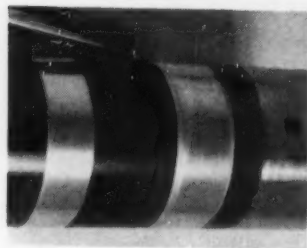


FIG. 1—Painted silver slip rings are baked and then polished. Note the reflection of pencil on ring.

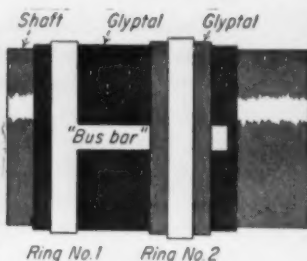


FIG. 2—Alternate layers of Glyptal and silver paint insulate rings, allow leads to be painted on shaft.

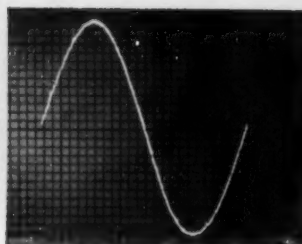


FIG. 3—Vibratory signal is about 120 microinches per in., peak to peak, with rings out of the circuit.

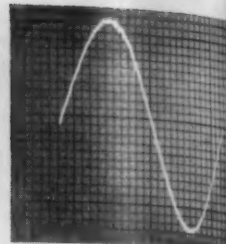


FIG. 4—Same size signal as Fig. 3 transmitted through two slip rings arranged in series with the gage.

Strain Gage Circuits FROM A BOTTLE



By D. K. Wright and J. R. Jeromson, Jr.
Associate Professor Instructor
Machine Design
Case Institute of Technology
Cleveland

- ◆ Paint originally developed for printed electronic circuits can be applied to shafts over an insulating enamel to permit taking off strain gage readings.
- ◆ Gage leads on the shaft or on gears, keyways, etc., can be made easily by painting along the shaft to the rings . . . Soft carbon brushes connect shaft with instruments.
- ◆ Easy to make and inexpensive, slip rings from a bottle will fit any size shaft.

◆ **SILVER PAINT** originally intended for printed electronic circuits can be used to make slip rings for strain gage circuits. The rings are simply brush painted on a shaft (Figs. 1 and 2) over an insulating base coat. They can then be connected to gages and instruments to measure strains in shafts, gears, flywheels, etc. The technique was developed by the authors at Case Institute of Technology using General Electric

Glyptal enamel with Baldwin SR-4 strain gages.

After the rings are painted on the shaft they are baked and polished. The resulting surface has sufficiently low contact resistance and is hard enough to be suitable for strain gage circuits. The limits of speed and life of these rings have not been fully determined, but they have been operated successfully with soft carbon brushes at surface speeds up to 700 fpm. A pair of rings

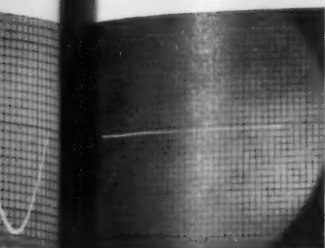


FIG. 5—Oscilloscope picture with rings out of the circuit and no strain applied to the gage shows zero line.

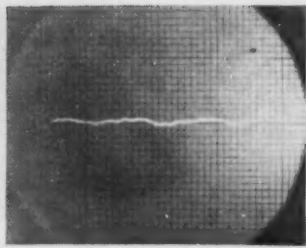


FIG. 6—Only slight distortion is produced at zero signal with rings cut into the circuit. Note shallow "wave."

1½ in. in diam ran at 1750 rpm for 120 hr without appreciable deterioration.

A recent demonstration used a single Type C-8 SR-4 strain gage in a dynamic potentiometer circuit (Ellis BA2 single gage circuit) in which the signal was led from the gage onto a rotor through one of the painted slip rings, along the rotor to another slip ring, and off that ring to the amplifier and oscilloscope. The strain gage was purposely not mounted on the rotating part so that by means of a switch, the slip rings could be cut out of the circuit entirely.

Fig. 3 shows a vibratory signal of about 120 microinches per in. peak to peak value with the rings cut out of the circuit. Fig. 4 shows the same signal as transmitted through two rings in series with the gage. Figs. 5 and 6 show the zero line (no strain applied to the gage) as transmitted with the rings out of the circuit and in the circuit, respectively. Two rings in series with a 500-ohm gage apparently produce a noise level approximately equivalent to 10 microinches per in. strain, peak to peak. For all of these figures, the 1½-in. diam rings turned at 1500 rpm. Two soft carbon brushes were used on each ring.

Connections of gage leads to the rings are made easily, again by painting. A band of silver paint may be applied axially on the shaft from the far slip ring to the gage lead which is held on top of the insulating enamel by Duco cement. A second ring of insulating enamel applied over the connecting band serves as a base for the near slip ring and separates the two rings electrically. A second painted band from the near ring then completes the connection to the other gage lead.

Painted slip rings appear to have adequate electrical and physical properties for use in strain gage circuits. They are easy to make, cheap, and take minimum space. Further, slip rings from a bottle will fit any size shaft.

NEW BOOKS

"Mechanical Inspection," by W. H. Armstrong. Here's a practical manual for training inspectors. Emphasis is on tools and methods used in checking machine shop products. Also discusses hardness testing, magnafux, radiographic inspection, statistical quality control. McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36. \$5.50. 361 p.

"The Norton Story," by Mildred McClary Tymeson. The author picked the pockets of memory of more than 300 people for this very human story of the Norton Company. Franklin Blackmer Norton and Frederick Hancock established a pottery business in Worcester, Mass., in 1858. These men, and the many fine craftsmen they attracted, laid the foundations for a great industrial enterprise. Commonwealth Press, 44 Portland St., Worcester 8. \$3.75. 312 p.

"A Survey of Pension Planning," by R. E. Sibson. From personal experience in the practical problems of pension planning, the author has detailed procedures for setting up a successful employment retirement plan. Commerce Clearing House, Inc., New York 36. \$2.00. 184 p.

"Mechanical Engineering Thermodynamics," by

David A. Mooney, covers principles of thermodynamics and their application to mechanical engineering processes. Emphasis is on background material and significance of laws and definitions. Gases and vapors are treated as one subject in a comprehensive coverage. Prentice-Hall, Inc., 70 Fifth Ave., New York 11. \$9.35. 540 p.

"Treatise on Powder Metallurgy," by Claus G. Goetzel. In three volumes, Dr. Goetzel has presented an encyclopedic treatment of metal powders. Volume I deals with the technology of metal powders and their products. Volume II covers applied and physical powder metallurgy. Volume III presents a classified and annotated bibliography of 12,000 literature and patent citations from 20 countries. Interscience Publishers, Inc., 250 Lexington Ave., New York 1. Vol. I, 806 p., \$18.00; Vol. II, 928 p., \$18.00; Vol. III, 923 p., \$22.00.

"Development of A Semiautomatic Wax Injection Machine for Making Investment Casting Patterns." Reviews design of war injectors now in use. Describes the machine built at Frankford Arsenal and results achieved. Report No. PB 108113. Library of Congress, Washington 25, D. C. Microfilm, \$1.75, photostat, \$2.50.

The Right Plant Site And Design CAN SAVE YOU MONEY



By Richard Barancik

Partner
Barancik, Conte & Associates
Chicago

- ♦ Low-cost building layout for efficient production is achieved by careful planning, simplicity in design and use of new techniques . . . Application of basic principles brings building costs down to \$5 to \$6 per sq. ft.
- ♦ Soil-boring tests help determine stability of site . . . Department heads' opinions are valuable to architect . . . Lifting, loading and conveying facilities of adequate size aid materials handling.
- ♦ Pleasant surroundings help recruit and retain employees . . . Communities have welcome mat out for plants of good appearance . . . More color and glass are used.

♦ THE EFFICIENCY of a building is not always measured by the amount of money spent on it. A combination of planning, simplicity and new techniques is necessary to make low cost and maximum productivity compatible. Set rules will not answer every contingency but every prospective builder should consider certain basic points. These precepts are illustrated in some of the problems encountered by Barancik, Conte & Associates.

Building on unstable land is always expensive. A soil-boring test on a potential site is a good check to determine its suitability for the load to be superimposed. Only recently, a steel warehousing and fabrication firm chose a site which boring tests proved marshy and insecure below the topsoil. The site would never have supported the tremendous load involved in warehousing steel. Damage to the building would have resulted from settlement and cracked floors.

Unfavorable soil conditions in another instance made it necessary to cantilever a factory out over a sea wall. The extra engineering added nearly one third to the construction cost. Still another prospective builder discovered too late that his site was formerly a brick yard. The job of cleaning it out cost thousands of dollars.

Avoid low, marshy land and sites filled in with cinders, debris and garbage. Even though the soil may be stable enough for its intended use, resale value may be seriously affected.

Before remodeling or constructing a building, request a scale model from the architect to illustrate what he has in mind. Only experts can visualize the finished plant from a complicated set of drawings. Also consult all department heads for their opinions. It may help to save thousands of dollars later. For example, a factory manager who knows how high steel is piled in his warehouse, can help the architect determine the height

of the building required for efficient operation.

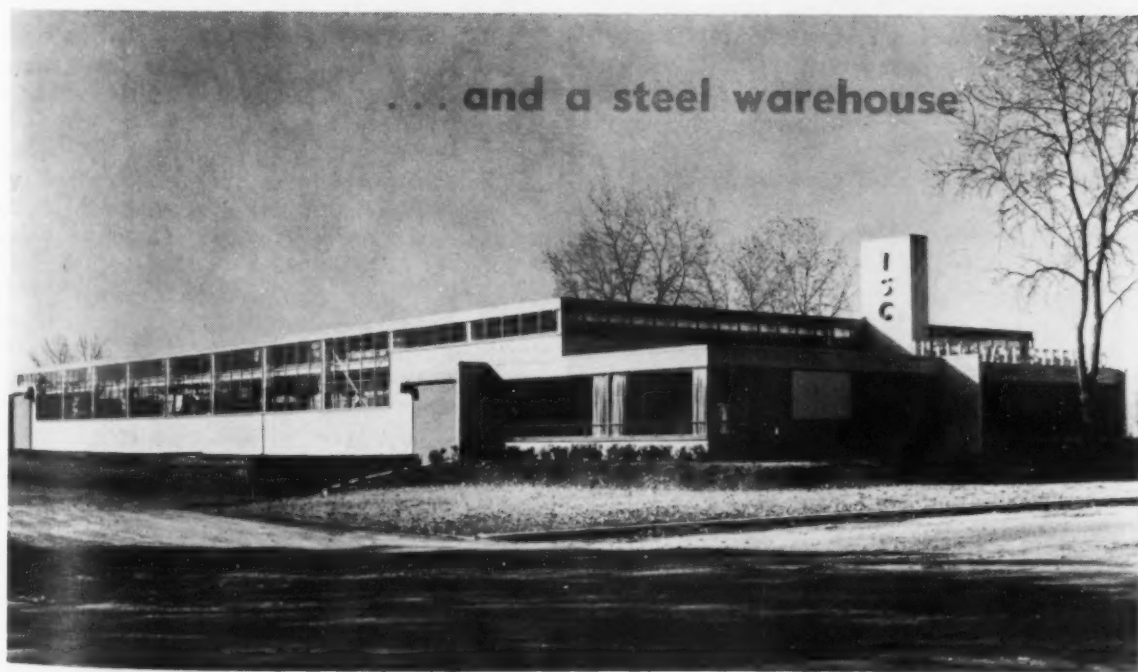
In one steel warehouse, use of an underslung crane saved 1½ ft in height. By adopting rigid arch construction, another foot was saved, reducing the total cost by about \$5000.

Horizontal pallet loading should be considered since piling upward instead of outward can save on construction costs. It costs about half as much to raise the height of a plant to 30 ft than to add to its length or width.

In purchasing a site, plan for the future. One owner purchased a site twice as large as he needed 10 years ago. Even after plant expansion, it left him with extra acreage. When he sold the extra land, he had two big advantages—he picked his own neighbor, and because it was improved land, he received much more than he paid for it.

If a site is too small for expansion it may subsequently be necessary to build another plant nearby. But, two operations even a block apart

Small plants that show careful planning, good design and layout—



MULTIPURPOSE building, top, houses offices, drafting rooms and production facilities. Eliminating heavy masonry and cut stone, exposing interior framing, plus other economies, cut cost to \$6 per sq ft.

DISTINCTIVE DESIGN, bottom, and good identification are achieved at low cost by combining pale green enamel panels with brick for the exterior. The same color-material theme prevails in the office.



CANTILEVERED FRAMING, used in this machine shop, can save as much as 15 pct in steel tonnage. Expanse of glare and heat-reducing glass eases eye-strain and gives the exterior a modern appearance.

are inconvenient and costly. One such firm paid more than \$300,000 for extra salaries alone because each plant needed its own nurse, traffic manager, production chief and other employees.

Facilities for lifting, loading and conveying are especially important. Railroad doors, truck tail gates, overhead clearances and loading docks should be of adequate size for efficient handling of shipments. One owner, after insisting on a loading dock for steel trucks of a length prescribed by law in his state, learned that the trucks used handled cattle on the inbound run and steel on the outbound run. These trucks were 5 ft longer and would not have fitted into the smaller dock.

Changing market conditions have a direct effect on construction costs. Materials available one month may become critical the next. Plan for current conditions and buy materials in the quantities needed when the price is best—storing them if necessary. A shortage of key materials after the planning stage may mean higher prices.

Save on steel requirements

Choose materials that weather well in the proposed building area. Exposed concrete is practical and attractive in a southern area but is subject to crazing and cracking in a northern area. White stone which remains clean and attractive in the south becomes streaky and dirty from smoke and dust-laden atmosphere in a northern industrial area.

Economies offered by new architectural techniques cannot be overlooked. In building a machine shop, I-beams turned flat and filled with concrete have been used in place of conventional window sills. Steel used in unique ways for structural framing can overcome shortages of certain shapes. As much as 15 pct can be saved in steel tonnage by cantilevered or rigid-frame construction.

A plant of lighter construction is not necessarily unsafe or poorly engineered. Good engineer-

ing means using a minimum of material to do a specific job in a satisfactory manner. Extra cost to build a plant like the Rock of Gibraltar is not necessary.

Outside walls are primarily for keeping the weather out—not to hold up the building. Vitreous enamel panels have been used successfully for exterior finishes, but unfortunately, development of mass-production methods for some new materials has been slow. This has kept their prices more competitive with masonry. Also, in many areas it is easier to get skilled bricklayers than to train men for field erection of new wall panels.

A small plant which must serve for production, executive offices and drafting rooms can be built for efficiency and at low cost. This can be done by exposing steel framing and abandoning non-essential heavy masonry and cut stone. One such plant was completed for \$6 per sq ft.

Another way to get good industrial efficiency at low cost is by adopting the split-level technique. Tri-leveling, strictly an interior function not visible from the outside, saves on framing and roofing. In one 25,000-sq ft building, the factory occupies the middle level, utilities and locker rooms are half a flight below, and the office is on the upper level.

Consider color in your plans

In this same building, vitreous enamel panels in pastel shades were combined with brick for the exterior. Steel was saved by eliminating hard-to-get purlins in favor of noncritical bar joists. Girders supporting the bar joists were cantilevered at about the fifth point. These economies resulted in a building costing only \$5.15 per sq ft.

Use of color for eye ease, safety and departmental identification is worth considering in planning. An expanse of glass is popular in modern plants, but use of the right type is important. If windows face south, east or west, glare and heat-reducing glass should be installed.

All this planning helps toward a good-looking, efficient and modern unit, individual in appearance. It will be void of useless and expensive trappings and have a clean, neat appearance rather than a gaudy facade which implies "window dressing."

How to cut employee turnover

Good surroundings also help to recruit and retain employees. Other things being equal, employees prefer a plant which reflects interest in their welfare. One owner who built a new unit has almost no employee turnover and receives more applications for jobs than he can possibly handle. In another case, absenteeism dropped 50 pct.

Towns are proud of good surroundings but show animosity to an ugly plant. Stricter zoning regulations, higher tax rates and labor shortages often result. Market and product are served best by plants of good design.

Casting Cleaning Costs Blasted

♦ **PUMP AND WATER WELL** castings made at foundries of Layne & Bowler, Inc., Memphis, Tenn., range from 1 lb to 1100 lb in weight. Produced in both gray iron and bronze, the castings present a substantial cleaning problem. Inside vertical surfaces, recesses and deep holes complicate the cleaning operation.

In an effort to cut both cleaning time and labor costs, Layne & Bowler recently installed an airless, abrasive blast-cleaning cabinet with swing table. Since the cabinet was installed, cleaning time has been cut in half and cleaning costs have been cut almost half.

A swing table-type blasting machine made by American Wheelabrator & Equipment Corp., Mishawaka, Ind., was selected for the application. The work table, 72 in. in diam, is mounted on the door of the machine.

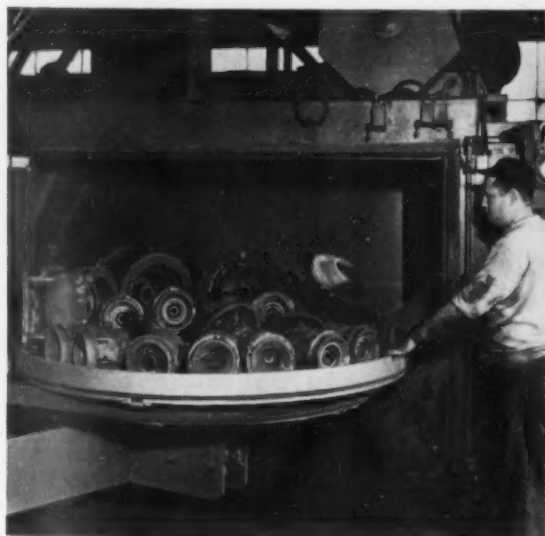
When the door is opened, the table automatically comes out into the work area for loading or unloading. When the door is shut, the table moves into the blast zone.

During cleaning, the table rotates the work. Metallic abrasive is thrown centrifugally by two rotating, bladed wheels mounted inside the cabinet. One wheel, mounted in the roof of the cabinet, provides overall coverage. The

second, placed at an angle on one side of the cabinet, covers the sides of tall pieces. With these wheels surfaces in deep holes and recesses can be completely cleaned. After a few minutes' blast in one position, pieces are turned and the unexposed sides are blasted.

Metallic abrasive is used over and over. After striking the work, the abrasive falls into a pit below the machine. A screw conveyor moves the abrasive to an elevator. It is carried to the top of the machine where a separator system removes contaminants (some of which are in the form of dust), and abrasive worn too small to be useful. Usable abrasive is refed to the hurling wheels. The cabinet is always under suction and ventilated by a dust collector, so the plant work areas remain clean and dust-free.

The cabinet has reduced labor cost considerably. Six tons of castings can now be cleaned in less than 4 hr. Airblasting and tumbling methods formerly used required 9½ hr to do the same amount of work. Labor requirements dropped from 28½ man hours to 12 man hours. A saving of \$4.35 per ton of metal, on a yearly basis of 1216 tons, has resulted in a cleaning cost reduction of \$5290.



CASTINGS covered with scale and sand have been loaded on work table of airless blast cleaning machine. Operator will close cabinet door, move table into blast zone for cleaning.



MINUTES LATER cleaned castings are moved out of blast zone. Chain hoist simplified handling of work. Castings, in gray iron and bronze, range from 1 lb to 1100 lb. Heavy castings are turned to clean both sides.

For better heat treating—

AUTOMATIC CONTROLS

Improve Furnace Operation

- ◆ Development of dependable automatic temperature control equipment has placed industrial furnaces on a par with other automatic machinery.
- ◆ Best furnace control is achieved when characteristics of both furnace and controlling unit are matched . . . Trend is toward more controls.
- ◆ Electric resistance furnaces are particularly suited to fully automatic operation . . . Fast reaction rate of small heat treating furnaces requires more responsive instruments.

By Leo Walter
Consulting Engineer
Cheltenham, England.



◆ **MODERN FURNACE DESIGN** and development of automatic furnace controls have made the industrial furnace a reliable, fully automatic machine. Electrical resistance heating for furnaces is particularly suitable for fully automatic operation. Present engineering trends indicate electric furnaces of the future will have much automatic gear as standard equipment. Any process variable, such as temperature and draft, and material handling will be automatically controlled.

In recent years, to meet demands of modern metallurgy, many control elements have been added to high temperature pyrometers to cover temperatures ranging from 300° to 1600° C. Sturdy pyrometer-controllers of the indicating, nonindicating and recording types have been developed.

For automatic furnace control at higher temperatures, thermocouple and radiation pyrometer controllers are standard. These units are power operated. The small impulse developed from the

temperature detecting element requires magnification to produce the final control movement. Control action may adjust a stack damper, position an electrode, or vary the rate of heat input. Electricity, compressed air, water or oil under pressure, or combinations of these, usually power control instruments.

Fig. 1 shows the elements and control cycle of an automatic controller, and the relation of these elements to the heat flow process. Also shown is the control cycle. A chain of reactions originates in the furnace and returns to the furnace as the control movement of the regulating unit.

Modern furnaces can be controlled within narrow limits. Accuracy, however, depends on the characteristics of the controlling unit and of the furnace, working conditions, and correct selection and installation of controlling equipment.

For greatest control accuracy, controller and furnace characteristics should be matched. A very responsive pyrometer-controller would have little value matched to a large brick-built furnace which requires considerable time to change temperature, because of residuant heat in the refractory material. A very small heat treating furnace with a quicker reaction rate may require a more responsive thermocouple instrument.

Small temperature deviations are inevitable in

MR. LEO WALTER, Vienna born engineer, has years of experience in power and instrumentation engineering. Through his many technical papers on automatic process control, he has gained wide recognition in Europe.

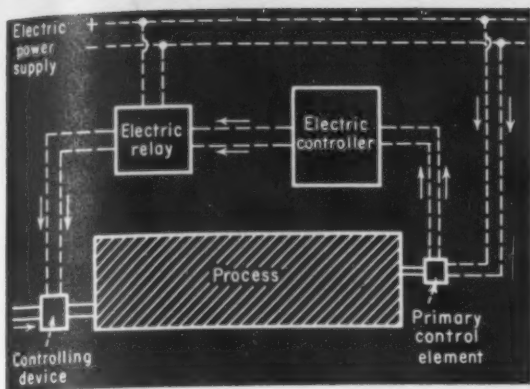


FIG. 1—Elements and control cycle of automatic furnace controller showing their relation to heat flow.

automatic control, because control counteraction can only develop after a small change of the controlled process variable. These deviations for initiating control action will be small, if furnace controllability is good and if the right controller is used. A less controllable furnace will produce more pronounced waves of the record curve in spite of using a responsive controller, because the reaction rate of the furnace might be so slow as to delay the result of the controller action considerably.

Chief factors influencing control accuracy are: (a) Responsiveness of the furnace to control action (a process characteristic), depending mainly on the time lags of reaction of the furnace related to the regulating unit; and (b) the way in which the regulating unit counteracts a change of furnace temperature.

This "mode of control" is the decisive factor in controller design. Basic control mode types are the two-step or multi-step modes, and gradual (modulating) modes.

Most common is the "two-position" control mode. Usually a mechanical trip arrangement produces either on-off or high-low control—two extreme positions of the regulating unit. For on-off, they are the maximum or nil and for high-low they are the maximum and a minimum of energy input. With on-off control, a thermostat switch opens or closes the supply of electric current or fuel to a furnace, Fig. 2.

The two-step mode depends entirely on the time-factor. By lengthening the "open" periods of heat supply, average heat input is increased. High-low control will then allow for maximum heat input as long as furnace temperature is below desired control temperature. Once furnace temperature has reached the set point of the controller, heat input is cut to a minimum.

For example, three heating elements or burners are in operation for running the heat load only. After the desired furnace temperature has been reached, the controller cuts out two heating elements. The remaining element should be just sufficient to hold the furnace temperature steady by making up heat losses.

Three-position control has a "high-medium-

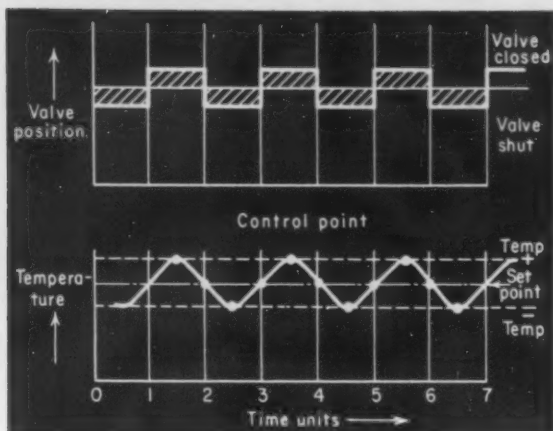


FIG. 2—Two-step mode of control is based on open and shut action of thermostatic switch in power line.

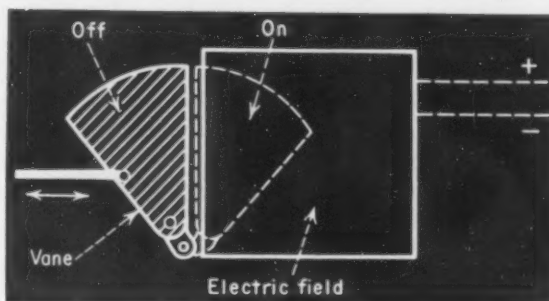


FIG. 3—Oscillating field and moving vane are used in electronic on-off control. Furnace temperature is relayed through electronic tube to electric field.

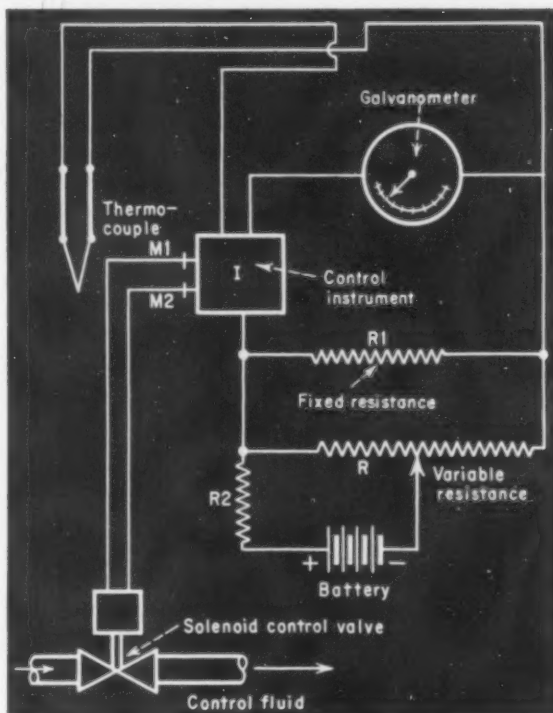


FIG. 4—Rate of intensity of heat input to furnace can be varied in relation to temperature deviation by a thermocouple and potentiometer-controller circuit.

Large heat storage capacity of most furnaces tends to smooth out temperature changes. . . . Electronic controls are fast . . .

low" rate of heat input. The multi-position mode allows a multitude of rates of heat input, according to furnace heat demands.

Basic design for two-position control is usually some form of electric thermostat switch. With potentiometer control once the galvanometer pointer reached the "set" temperature, the switch trip mechanism is actuated. Heat flow is reduced to the desired low-heat position, "nil" for on-off mode, or "low" for high-low control.

With two-position control, furnace temperature fluctuates between an over-run and under-run. The temperature difference between the set and low temperatures at which switch actions occur may be 1° or 5°C, or more, according to control accuracy desired.

Temperature change vs. heat storage

The smaller the differential is adjusted, the closer might control become. The cycling character however will be emphasized by a quick reaction rate of the furnace. An undesirable continuous on and off movement of the regulating unit may result, with erratic cutting in and out of current or fuel supply.

Most heat-treating furnaces have a large capacity for heat storage, which smooths out changes of temperatures. Furnace temperature will neither rise or drop too rapidly after the heat has been switched on or off. A furnace is thus less elastic to change of heat input. This is advantageous for two-position control, but not so good for the gradual mode of control, because time lags falsify control effect.

The selector mechanism of a furnace controller is usually sensitive to a change of 2° to 3° C ($+1\frac{1}{2}^{\circ}$ C for the better class instruments). In spite of this small differential, furnace temperature is bound to over-shoot or under-shoot due to the inherent heat storage capacity of the furnace lining, which continues to dissipate heat after the heat supply has been cut out.

Have quick response

More and more electronic furnace temperature controllers are being used. The electronic tube responds quickly to minute electric impulses. These impulses are magnified in an electronic relay. Fig. 3 shows the operating principle of an electronic control pyrometer. Two coils in an oscillatory circuit are arranged side by side and a third coil is attached to the instrument pointer. Depending on the position of the galvanometer coil (furnace temperature), the electronic tube makes or breaks the heating circuit to the furnace, thus producing on-off control.

Many heat flow processes require a continuous control action. Heat input is varied proportionately to the rise or drop of the temperature. Normally, they work upon the potentiometer

principle. When used with electrical resistance thermometers, they work on a Wheatstone bridge circuit. For working in conjunction with thermocouples, potentiometer controllers are available for any voltage of the magnifying current up to 250 v ac at any frequency, or for direct current.

A proportional electrical controller uses a potentiometer slide-wire, movement of which actuates a cam mechanism. A motorized power unit contains the primary selsyn motor, the other being located in the instrument. The selsyn motor in the instrument moves proportionately to the deviation of the furnace temperature, and causes the selsyn in the power unit to take a corresponding position. The power unit can then be used to adjust heat input to the furnace. The thermocouple, located between the heat source and the furnace charge, reacts to the average furnace temperature.

Means are provided for adjusting the proportional band of the controller. This is the rate at which intensity of heat input into the furnace is varied per degree deviation of temperature. A wider proportional band (indicated on a scale on the control mechanism) produces a gentler rate of heat input, a narrower width of band allows a greater rate of heat input per degree of change of furnace temperature, Fig. 4.

Offset of temperature is the wandering of the set temperature in the case of sudden disturbances of the heat load. If the furnace load is suddenly doubled, the temperature falls in spite of proportional control, and establishes itself at

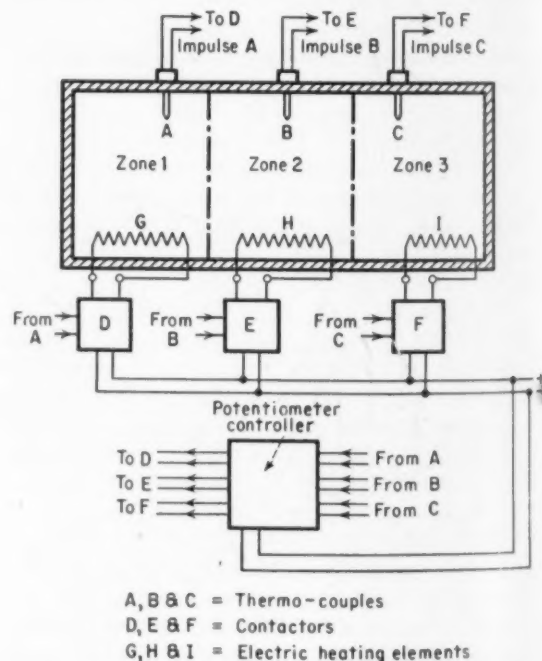


FIG. 5—Setup for zone control of electric furnace using potentiometer. While more expensive, these units permit more accurate control of furnace variables.

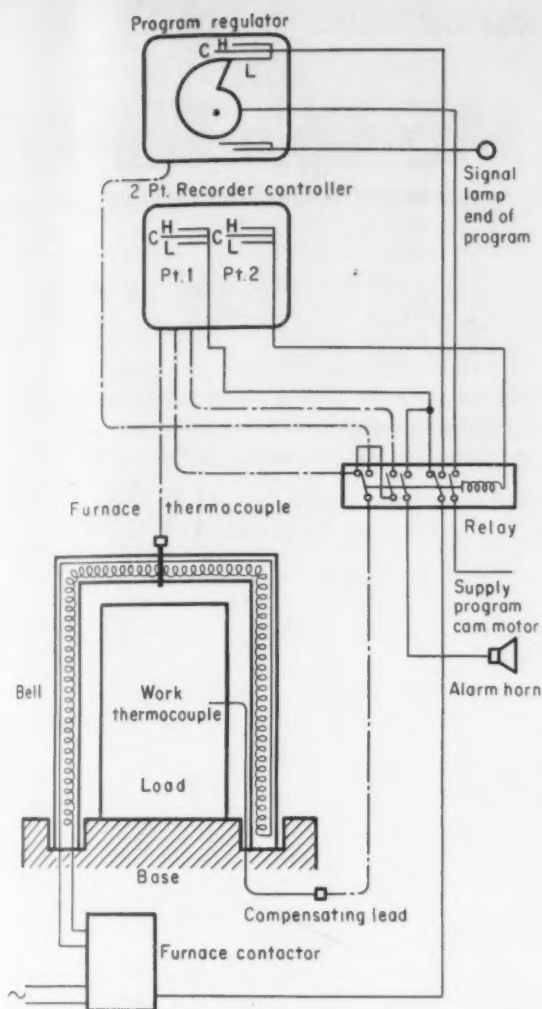


FIG. 6—Schematic arrangement of controls for bell-type electric furnace. Courtesy George Kent, Ltd.

a new, lower set point. If the furnace load is halved, a higher set point establishes itself.

To avoid this the controller mechanism must be reset by hand or automatically where frequent, heavy changes of heat load occur. Controllers providing this reset correction, use "reset mode" of control. These stabilized controller types must be used for the larger heat-treating furnaces. One method of achieving reset control is to use the deviation of furnace temperature (new set temperature from original set point). Tied to the furnace power unit circuit, it moves a resistance to the furnace heating elements to correct the offset and reestablish the original temperature setting.

Whether control instruments for electric furnaces are of the potentiometer or millivoltmeter type depends on local working conditions. Potentiometer instruments are generally more accurate. The galvanometer works independently of the indicator pointer or recorder pen and does not strain the control mechanism.

Potentiometer controllers, Fig. 5, cost more than the millivoltmeter type, and are more elabo-

rate. Whichever type is used, maintenance by skilled personnel should be the rule. Measuring or controlling instruments should be inspected and overhauled regularly to avoid breakdowns.

Attainable accuracy of automatic furnace controllers is usually about 1 pct of full scale reading. In view of furnace time lags and low controllability this is considered good. Electrically-heated furnaces usually have good controllability, equal at least to the best achieved with gas or oil-firing.

With automatic timers an electric furnace can be started by pushing a button. The furnace will then be stopped automatically after a set time interval. Heat-treating furnaces can be equipped with three-position-control timers, producing high-medium-low heat input by means of special mercury-vacuum switches and relays. The control units containing the contactor gear are usually floor-mounted near each furnace, or are part of the instrument panel. Contactor gear panels consist of a main isolator with mechanical and electrical interlocks to insure correct operation sequence.

Fans are interlocked

A solenoid overload protecting device, with pilot lamp, relay and fuse is usually included. Where air movement is provided for, each fan is electrically interlocked for automatic operation. A limit relay cuts out the fan motor when maximum furnace temperature has been reached.

The common temperature detecting control element is of heat-resisting design with adequate protecting sheaths, to withstand temperature and furnace atmosphere. Iron-Constantan type thermocouples generate a voltage of about 6 mv per 100° temperature difference between hot and cold junction. Chromel Alumel couples generate 4 mv and platinum/platinum-rhodium couples 1.35 mv. Millivoltmeter instruments should have an internal resistance to compensate for errors from the lead resistance. The leads should be made from compensating cable, Fig. 6.

Need good contact design

Because of the frequency of switching, only the best design of contacts in the contactor gear is good enough, if reliability of control is to be assured. The most frequently used contactor type has a clamping arm and works like a chopper bar mechanism. For some furnaces, star-delta switching can be applied with advantage, especially for lower temperatures and for light and average loads. This reduces the furnace rating by about one-third.

Program controllers can be used to produce any desired heating cycle. An example would include a heating-up curve, a holding-temperature period, and a cooling-down period. Properly engineered furnace control makes possible the addition of automatic furnace atmosphere control and automatic draught or pressure-control.

7-458

TOOL LOAN ORDER No. 072961

Clock No. 2 Bin No. 5D

Dept. M.S. Date 3-24 1952

QUAN. 1 SIZE 1/2" KIND OF TOOL 1 PS. T&P

WORKMAN NOTE: THIS TOOL IS IN YOUR CHARGE UNTIL IT IS RETURNED. IF LOST IT WILL BE CHARGED TO YOU. KEEP THIS SLIP UNTIL TOOL IS RETURNED. THEN EXCHANGE IT FOR RECEIPTED SLIP.

Signed [Signature]

This Tool Order is for one item only

BUCASKEY, ALLIANCE, OHIO

TOOL LOAN ORDER made out in triplicate and signed by employee is positive record of tool responsibility. Employee gets tool and one copy of tool order—crib attendant retains remaining copies of tool order.

By James Lawler, Jr.
Vice-President
Lawler Automatic Controls, Inc.
Mt. Vernon, N. Y.



♦ A CROSS-FILING SYSTEM, using triplicate tool orders, is the basis for complete control of tools at the plant of Lawler Automatic Controls, Inc., Mt. Vernon, N. Y. The system is simple, yet it establishes a positive record for each tool loaned to the 35 to 40 men served by it.

Previously, tools were loaned to workers as they were needed. No records were kept; consequently, the job of locating tools was time consuming and costly. Placing responsibility for breakage, stocking of proper tools, taking inventory and sensible buying were difficult or almost impossible. This system, devised by the McCaskey Register Co., Alliance, Ohio, overcomes all these difficulties.

When a worker needs a tool, he fills out a triplicate tool order blank (white, yellow and pink) and signs it. The crib attendant gets the tool from the bin and simply adds the bin number to the order blank. He gives the tool and the yellow copy of the tool order to the worker; he retains the other two.

The original or white copy of the order is immediately filed under the worker's clock number on a clip-spring wall board. Each employee authorized to draw tools has a similar filing position on the board.

When the employee returns the tool to the crib in good condition, he receives the white

Stop hide-and-seek—

Simple Tool-Crib

♦ Simple, cross-filing of tool orders is the crux of a system for keeping tabs on tools . . . It pins down responsibility and speeds tool-crib service.

♦ Ability to locate tools quickly saved more than 2 hr per day of a machine operator's time . . . It also gives crib attendant much more time for other duties.

♦ Reduction in tool cost ranges from 35 to 50 pct . . . System pays for itself several times over within a year.

copy of the order, assuring him the tool is no longer charged to him. If he holds tools excessively long, an accumulation of white slips on the wall board signals the crib attendant to recover tools that are not being used. The dated slip shows the length of time tools are in a worker's possession.

The system also provides filing positions in a cabinet for each size of every tool carried in the crib. Positions are numbered to correspond with bin numbers in the crib. The pink copy of the tool order is filed under a clip bearing the number of the bin from which the tool was taken. Under this same clip are slips for tools of the same description loaned to other workers.



WALL BOARD holds original copy of tool order under a spring clip bearing name and clock number of employee. An accumulation of slips under a name is a signal to recover tools which may be hoarded.

crib CONTROL SYSTEM SPEEDS SERVICE

The tool order places definite responsibility for a tool upon the worker until the tool is returned. He is charged for it if it is abused or lost. When he returns a tool, he also returns the yellow copy of the tool order to the crib attendant to speed the operation. While the tool is in use, the employee retains the yellow copy under a clip spring attached to his machine, bench or tool box.

A white card, permanently retained in the filing cabinet under the bin number for each tool, keeps a perpetual inventory for tools of the same description. Entries are made only when tools are added to stock, scrapped or transferred, thus changing the number of available tools. The number of pink slips filed in front of the white card plus the number of tools in the bin is the total carried by the crib.

When a worker returns a tool, the pink slip is removed from in front of the inventory card and placed behind it. Once a month, these pink slips are counted and recorded on the reverse side of the inventory card. This provides a record of tool activity and is the basis for determining tool requirements.

If a tool is damaged or broken, the worker obtains another tool from the crib only when he returns a breakage report signed by his superior. The breakage report lists the tool description, bin number and cause for the breakage.

In use only a year, the system has paid for itself several times. Because of the specialized

BIN NUMBER

Description 1/2" I.P.S. Tap

INVENTORY							
DATE	IN	CUT	BAL	DATE	IN	OUT	BAL
1/2			7				
2/16	3	1	9				
3/25	2	✓	10				

FORM C39

RECEIVED ALLIANCE, CHIC

INVENTORY CARD keeps perpetual record of tools stocked by crib. The number of pink slips filed in front of the inventory card plus the tools in the bin are the total number carried by the crib.



FILING POSITIONS, corresponding to tool-bin numbers, give the location of every tool carried by the crib. Tool loan orders are filed in front of an inventory card which fully describes the tool.

TOOL ACTIVITY RECORD

1953

JAN.	56				
FEB.	49				
MAR.	72				
APR.	62				
MAY					
JUNE					
JULY					
AUG.					
SEPT.					
OCT.					
NOV.					
DEC.					

TOOL ACTIVITY RECORD shows at a glance how much usage each tool gets. Record is kept when tool-crib activity is slow. It takes guesswork out of ordering.

No 490462

DT - 488

BROKEN TOOL REPORT

McCARTHY, ALLIANCE, OHIO

Tool No. or 10-32		Quantity	
Description 1A P		Dept. No.	
Date 3-24-53		Marb. No.	
Clock No. 37			
Oper. ARIAND	Caused By	X	VALUE
Reason	Carelessness		
Broken	Defective Tools		
Damaged	Accident		
Lost	Hard Metal		
Worn Out	Ordinary Usage		
New Work			

Foreman *[Signature]*

NOTE: No Tool Furnished Without This Report in Full

BROKEN TOOL REPORT must be turned in by the employee when a tool is damaged, worn or broken. It must be O.K.'d first by the shop foreman or supervisor.

type of work done at the Lawler plant and the variety of machining setups required, each man previously lost an estimated 2 hr per day searching for tools needed for his next setup. This loss of productive time has been completely eliminated.

The system has also taken guesswork out of

ordering and stocking of tools. Figures of tool activity on the inventory cards tell at a glance whether the inventory of certain tools should be increased or decreased. This not only eliminates unnecessary purchasing, but enables the tool crib to carry a more complete stock. With the system, reductions range from 35 to 50 pct.

Breakage reports have a multiple purpose. Employees exercise greater care when they know breakage is checked. If breakage by any employee is excessive, the supervisor can correct wrong usage or abuse of tools. The reports also provide for quick replacement of damaged or broken tools. A study of these reports sometimes reveals faulty tool design or suggests means for reducing breakage.

Another major advantage of the system is the small amount of time required by the crib attendant to check tools in and out. What was previously a full-time job now requires only 25 to 30 pct of the time. This allows the crib attendant to devote more time to other activities.

Numerous other advantages are inherent in the system. Hoarding and loss of tools have been reduced, faster tool-crib service puts machines back into production sooner and disputes between the crib attendant and other employees are prevented. The system, besides being simple, is highly flexible. It can be adopted very easily for control of blueprints, jigs and fixtures, and other special requirements.

NEW FILMS

"Pioneer of Progress," is the American Iron and Steel Institute's new documentary film of the steel industry. It illustrates the important part steel has played in the life of America from pioneer days to today. Sequences shot at seven steel company plants show principal steps in making steel from production of iron ore through the final product. In black and white, the 16-mm, 15-min. film is available on free loan from Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York 20.

"Continuous Casting" is a new 35-mm sound film in color describing the Asarco process. The film is in two parts of 15 min each. The first section describes the history of the process, its engineering details, and its results. The second section describes applications for which continuous-cast products are suitable. Available on free loan to technical societies and engineering staff groups from American Smelting & Refining Co., Barber, N. J.

"Contact," a 16-mm sound film, is designed as a training aid for those in the electrical, electronic and aircraft fields who need to under-

stand the functioning and servicing of multi-contact electric connectors. Produced by Cannon Electric Co., Los Angeles, the 30-min film is available on free loan through Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York 20.

"The Story of Packaging," describes the increasingly important part the packaging industry plays in the growth of the mass distribution system. Produced in color, this 16-mm film runs for 15 min. Available on free loan from Continental Can Co., Inc., 100 East 42nd St., New York 17.

"Building Economy Into Tools and Equipment—Some Examples and Suggestions." Contains worthwhile information on how machines can be designed to enable the operator to produce more pieces with the same or less effort. In black and white, the film runs for 1 hr. A verbal commentary must be read as the film is being shown. Available on free loan from Saginaw Steering Gear Div., General Motors, Saginaw, Mich.

Amazing New Wyandotte

MERSOSTRIP

A time-saving tank-type alkaline paint remover



SPEEDIER
Action!

LOWER
Cost!

It's Accelerated!!!

- Mersostrip is a complete, balanced product — simply add it to water
- Extremely fast stripping of paints, lacquers and enamels
- Accelerated to destroy paint bonds
- Has wetting and penetrating agents for effective paint stripping and cleaning
- Non-dusty, free-flowing, 100% soluble, and free-rinsing
- Economical — shorter stripping time . . . lower concentrations . . . longer life

Here for the first time is a single product that gives you fast, economical paint stripping with alkaline materials dissolved in water. MERSOSTRIP gives you *much* faster and more complete stripping than is possible with ordinary caustic soda-type paint removers.

With MERSOSTRIP you use lower concentrations — reduce stripping time — get real cost-savings. And MERSOSTRIP works wonders where paint stripping and cleaning must be carried out in the same tank. Try amazing new MERSOSTRIP. Mail the coupon for data.

Wyandotte Chemicals Corporation
Wyandotte, Michigan

Please send data on MERSOSTRIP.

Name

Firm

Address

City Zone State



Wyandotte
CHEMICALS

Wyandotte, Michigan • Los Angeles 12, Calif.

Helpful service representatives in 138 cities
in the United States and Canada

April 30, 1953

FABRICATING:

Improved methods speed output of missile fuel storage tanks.

Muscle of a guided missile is its complicated hydraulic system. One small particle of dirt in hydraulic lines and power pumps could interrupt fuel flow and make the missile valueless.

For this reason interiors of guided missile fuel storage tanks must be kept completely free of foreign materials such as oxides, chemicals or grease. To meet this and other tight specifications, Rheem Mfg. Co.'s Aircraft Div. Plant, Downey, Calif., has developed new and better fabricating methods.

Tough Specs

In hardening and welding sheet and forged stock that would withstand extreme pressures and at the same time keep the interior of the tank clean, Rheem faced two problems (1) To properly weld the tanks; (2) to establish a non-destructive means of testing the weld.

Specifications required all welded joints be hydrostatic tested to withstand a pressure in excess of 7000 psi and pass an X-ray test for a resolution of 0.005.

These air storage tanks are constructed from SAE 4140 aircraft tempered steel. They require a higher heat treat to compensate for heavier wall thickness than the average stock used in tank construction.

The spherical tanks are drawn and formed from sheet stock and the cylindrical shapes are forged from billets.

Welding, Heat Treating

Special welding techniques were devised to handle these shapes and stock, plus a high production heat treating process to avoid contamination and decarbonization.

Heat treating is achieved in mass production quantity through use of conveyerized furnaces. Vessels are suspended from carrier cages which ride along the rails of the conveyer system.

DESIGN:

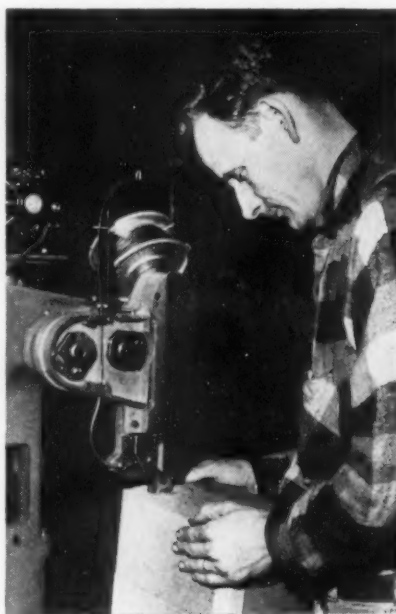
Small tubing solves problem on wire stitching machine.

Use of wire stitching machines has gradually become widespread in industry for a variety of fastening operations. Recently New Jersey Wire Stitching Machine Co. eliminated a maintenance bug from one of its machines through use of a cold-drawn, small diameter tubing.

Early wire stitching machines made by the Camden firm were equipped with seamless steel tubes to help guide the wire from the spool to the cutter clamp. Inner surface of the tube was found to be too rough. Wire passing through it would rub off small particles of metal which eventually clogged the tube and hampered passage of the wire.

Must Stand Abrasion

Superior Tube Co., Norristown, Pa., was asked to furnish tubing with an inside diameter smooth enough to allow passage of the wire without metal "pickups." At the same time, it had to be hard enough to withstand the abrasive action of mile after mile of stitch-



LOOPED WIRE GUIDE is used on this wire stitcher made by New Jersey Wire Stitching Machine Co. Guide is made from Superior's 304 stainless tubing.

IF YOU WANT MORE DATA

You may secure additional information on any item briefed in this section by using the reply card on page 71. Just indicate the subject heading and the page on which it appears. Be sure to note exactly the information wanted.

ing wire rubbing against inside of tube.

Tubing also had to be sufficiently ductile to be formed into a loop, and—in the case of tubes for flat box wire—to be flattened into an oval cross section.

Smooth Finish

Smoothness of inside diameter was no difficulty. Superior draws tubing with surface roughness as low as 10 micro inches. Standard mill production was able to furnish tubing with surface smoothness well above minimum requirements.

Type 304 stainless tubing, half-hard drawn, provided the desired combination of hardness and ductility. Rust-resistant properties of 304 stainless offered further assurance the tubing would remain smooth and free from rust pits.

Used In Redesign

New Jersey Wire Stitching found Superior's Weldrawn welded and drawn stainless tubing could successfully do the job.

When New Jersey redesigned their heavy box stitching machines, it was immediately decided to use the same material for the wire tube, but with 3/16 in. O.D.

Basic Materials on Parade

More than 75 producers of basic materials will place on parade the newest developments in materials for industry use at the First Exposition of Basic Materials. Exhibits for the exposition, to be held June 15 to 19 in New York, will be shown at Grand Central Palace.

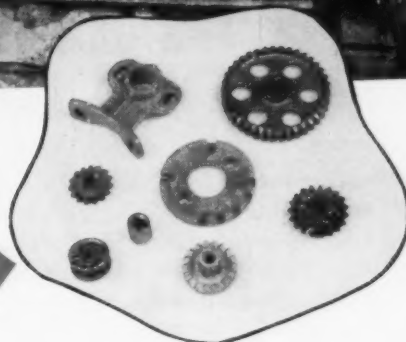
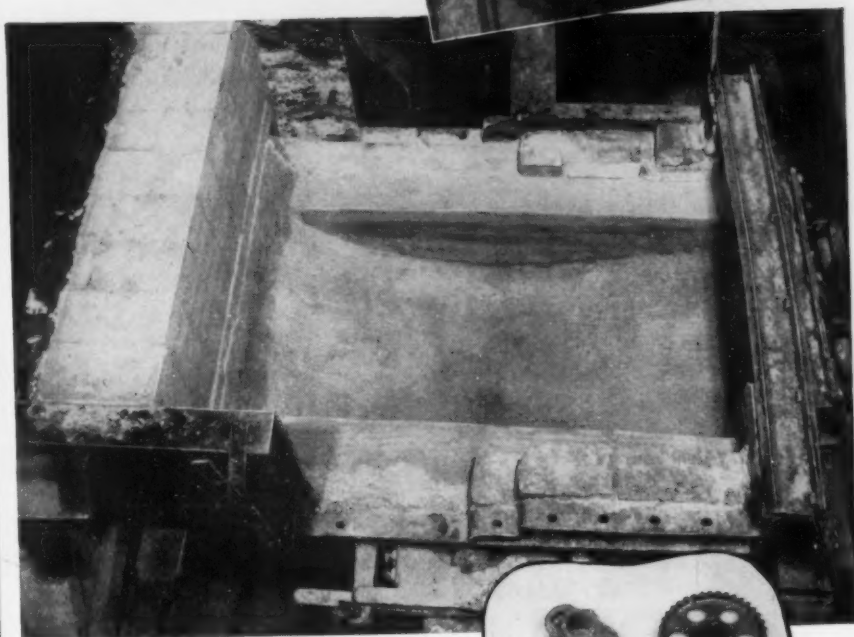
FRANTZ MFG. CO.

USES

SHAMVA®

SM-65

HERE



**TO BOOST
PRODUCTION HERE**

Production Ideas

PLASTIC ON GLASS:

Material cuts ultraviolet, infra-red rays of sun.

Some plant operating costs are tied directly to the amount of sunlight. Where there is too little sun, fuel is required for heating. Where there is too much sun, air-conditioning is often necessary.

Recently engineers of both the glass and plastics industries have been giving more thought to better materials for the control of heat rays and ultraviolet rays.

Sprayed On

Some success in better control of both ultraviolet and infrared rays has been reported for a thermoplastic tested at Southern textile mills for the past three years. The material is a spray-on plastic film and a sheet plastic, produced by Eastern Industrial Service, Inc., Cambridge, Mass.

Laboratory and factory tests claim the products will filter out blinding ultraviolet rays up to 95 pct, reduce transmission of hot infra-red rays up to 80 pct and eliminate sun-glare problems.

Use of the film, which is sprayed on windows, has helped cut air-conditioning, fuel and electricity costs in the southern mills.

MATERIALS HANDLING

Biggest potential field for savings in manufacturing operations is Materials Handling. This non-productive profit eater builds up manufacturing burden, adds nothing to product value.

To help you cut materials handling costs, THE IRON AGE next week brings you its special Materials Handling issue. In a series of instructive and thoughtful articles, based on operations in large and small metal working plants, you'll find solutions to many of your own materials handling problems.

To produce the metal for their intricate washing machine parts castings, Frantz Mfg. Co., of Canton, Ohio uses a 1000 lb. Sklenar furnace. Gray iron is tapped at 2700° after a heat of 1 hour. Previous to using Shamva cement, Frantz was getting 53 heats with fireclay brick. After switching to Shamva cement, furnace life was increased to 203 heats, and this number has been repeated over and over for several years.

Shamva Mullite Cements, Brick and Shapes have been giving similar outstanding performances consistently. Perhaps you can profit from the Mullite story. Our field engineers will be glad to tell you about it.

**THE MULLITE REFRACTORIES CO.
SHELTON, CONN.**

In Canada, Shamva Products Co., Ltd., Niagara Falls, Ontario.



When you want
high impact strength
for your heavy duty jobs

When these shovel jaws swing open, tons of rock and earth pound every welded joint of this truck body. Only weld metal of the highest impact strength can absorb the punishment.

You can depend on Arcos Low Hydrogen Electrodes for *all* of your high tensile welding applications—not just jobs like this that require maximum ductility and impact strength. The rigid Arcos quality controls assure you weld metal of consistently superior physicals. The wide selection of Arcos grades enables you to pick the right electrode for every job. Send today for your free copy of "The ABC's of Welding High Tensile Steels". Arcos Corporation, 1500 South 50th Street, Philadelphia 43, Pennsylvania

ARCOS GRADE	A. W. S. SPEC.
----------------	-------------------

Tensilend 70	E7016
Tensilend 100	E10016
Tensilend 120	E12015
Manganend 1M	E9015
Manganend 2M	E10015
Nickend 2	E8015
Chromend 1M	E8015
Chromend 2M	E9015



WELD WITH
ARCOS
LOW HYDROGEN ELECTRODES

—Technical Briefs—

KILN OPERATION:

New design speeds loading and unloading of grinding wheels.

Two new-type periodic kilns, employing their own railroad cars, are enabling Electro Refractories & Abrasives Corp., Buffalo, to fire grinding wheels in a fraction of the time formerly required. The kilns are a major feature of the company's recently completed vitrified grinding wheel plant.

Each kiln has two cars and two sets of tracks—a main line into the furnace and a siding. Kiln furniture and work to be fired are loaded onto a car outside the kiln, then run in for the firing operation.

The base of the kiln and its door are attached to the cars. When a car is pushed into the furnace, the door seals the opening through which the car entered.

Floors, Doors On Car

These unique kilns differ from the ordinary type in that the floors and doors constitute a single movable unit built onto a car and rolled into place on tracks. The floor is a fixed part of ordinary periodic kilns so that the furniture and work must be carried in rather than loaded outside.

After firing is finished, the ordinary kiln and its contents must be cooled down sufficiently for a man to go in and unload it before the next load can come in.

With the new kilns, the second load is placed on a separate car on the main track while firing of the first load is taking place and the kiln is ready for the new load long before it would be cool enough for a man to enter to unload it.

Cuts Loading Time

In this manner the new kilns save time on preheating as well as on loading and unloading which can be done under far more comfortable and convenient conditions. Electro experts load and unload these furnaces an average of three times in two weeks—the same time required for a single firing with older type kilns.

In providing both flexibility of operation and absolute heat control, the new kilns combine the advantages of the more familiar periodic and continuous tunnel-type kiln although they are essentially of the periodic type.

Each kiln load will consist of from 6000 to 9000 lb of vitrified grinding wheels. Natural gas firing is from both sides of the furnace. The base of each car forms the kiln floor and has flues which connect with other flues at the rear of the kiln to carry off the products of combustion.

MACHINING:

Time for grooving drums on boring mills cut with tool change.

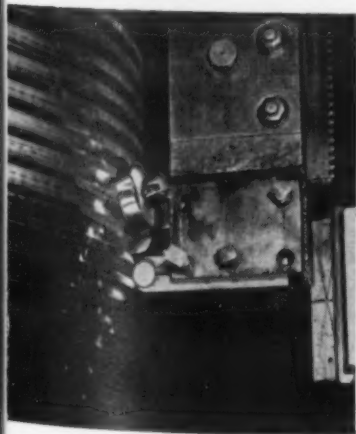
Machining the grooves in big steel cable drums has always been a slow job. But recently a mid-western manufacturer of heavy earth moving equipment was able to cut this machining time 46 pct through a relatively simple tool change—use of carbide inserts.

The drums, 41 $\frac{3}{8}$ in. in diam were grooved on a 50-hp Cincinnati Hypro vertical boring mill.

Less Down Time

The drums are 27 $\frac{3}{8}$ in. long. A 1 7/16-in. pitch groove, 5/16 in. deep is cut at 13 to 15 rpm. When finished the groove takes a 1 $\frac{1}{4}$ in. diam wire rope.

Time required to groove one drum with special shape forged



GROOVING of steel cable drums was cut 46 pct through use of carbide inserts. Fewer tool changes assured less down time.

Turn Page



How to get top weld strength at elevated temperatures

You'll certainly agree there's no room for error in fabricating the engines of today's high flying jets. Every welded part must be of top strength and offer maximum resistance to extreme heat.

Arcos Stainless Electrodes, which provide this peak performance in fabrication of jet engines, can give you the same high performance on *all* your welding applications. Use ARCOS STAINLESS ELECTRODES! They are your assurance that physically, chemically, and metallurgically you can get sound, dependable weld metal on every job. That saves worry and troubles later. And Arcos Quality Controls—most rigid in the industry—guarantee a better investment of your welding time and dollars. Write today for your free copy of "Electrode Selection for Welding Stainless and Alloy Steels". Arcos Corporation, 1500 South 50th Street, Philadelphia 43, Pennsylvania



WELD WITH
ARCOS
STAINLESS ELECTRODES

—Technical Briefs—

high-speed steel tools was 9.4 hr. It necessitated 40 cuts of varying depths and 3 tool changes and resharpenings. Now with the use of Kennamatic cemented tungsten carbide insert tools, one drum is grooved with 19 cuts and requires only 5 hr operational time.

Three drums are machined with one cutting position to groove three more pieces. Since each end of the insert provides three new cutting edges, 18 drums are grooved before the tool is removed for regrinding. To resharpen the tool only the insert's ends need to be ground. There is no form or clearance to grind as was formerly required with high-speed steel tools. To groove 18 drums formerly would have required down-time for 54 tool changes.

Kennametal's grade K2s 1 3/8-in. diameter tungsten carbide inserts eliminate tool resetting and picking up the lead heretofore required with the other tools.

Cable Has Improved Properties

A rugged, light weight, temperature-proof cable that can perform successfully under combat conditions anywhere in the world has been developed by the U. S. Army Signal Corps to improve the "phone system" of our fighting men in battle areas.

The cable, known as Spiral-Four, is used in multi-channel field telephone carrier systems first devised in World War II and now being perfected at the Signal Corps Engineering Laboratories at Fort Monmouth, N. J.

The cable is about 30 pct lighter in weight and 15 pct less in diameter, and can withstand a 650-lb load. It is unaffected by temperatures between 140° and minus 67°F.

The cable has four copper wire conductors, two for incoming and two for outgoing messages. Stainless steel wire is braided around the cable core. Low magnetic permeability and electric conductivity of the 18-8 stainless lessen transmission losses.



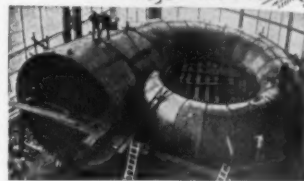
"Looks like someone swiped another one of Pete's Columbia Molite Cutters!"

COLUMBIA TOOL STEEL COMPANY • CHICAGO HEIGHTS, ILL.

Producers of fine tool steels—High Speed Steels
Die Steels—Hot Work and Shock Resisting Steels
Carbon Tool Steels.



STEEL PLATE WORK



TURBINE CASINGS

and other heavy steel plate work are fabricated at Pusey-Jones of Hot-Rolled, High-Strength, Low-Alloy Steel.

Every facility for large scale metal fabricating:

— Heavy plate shop
equipment — Rolls —
Shears — Bending furnaces. Stress relieving furnace 33'x18'x16' up to 2100°F. Machine shop for facing, turning, and boring. 50 ton capacity gray iron foundry. Deep-water transportation on one side, the Pennsylvania RR on the other. Talk to our development engineers.

Metals Fabrication Division
THE PUSEY AND JONES CORP.
504 Front Street, Wilmington, Del.
Established 1848

PUSEY JONES

THE IRON AGE

Still More Steel Price Increases Are in the Wind

In next few days another half dozen steel firms expected to raise prices . . . Will follow five that have done so already . . . Who boosted what . . . CF&I first to raise its base prices.

At least five steel companies have raised prices within the past week, and half a dozen more are expected to act within the next few days. Expected steel price rises, though slow to materialize, are now gaining momentum; several more are definitely in the wind.

Most price increases so far posted are in extra charges (for special processing to meet consumer specifications). But at least one producer has raised base prices on railroad steel items.

What Rose . . . Here is a summary of increases during the past week: Bethlehem Steel Corp., Jones & Laughlin Steel Corp., and Northwest Steel & Wire Co. have followed Republic Steel Corp. in raising extras on carbon steel bars. Increases generally fall within the \$2.50 to \$5.00 range announced by Republic.

Jones & Laughlin, fourth largest steel producer, also raised extra charges on hot and cold-rolled sheets. Increases were reported to average between \$1.00 and \$2.00 per net ton.

CF&I First . . . Colorado Fuel & Iron Corp. became the first steel producer to raise base prices when it increased rails by \$6.00 a ton and track accessories (including tie plates, joint bars, and track spikes and bolts) by \$3.00 a ton. CF&I, ninth largest steel producer, is the second largest producer of rails.

Price increases by several other producers are expected this week. At least three firms have already

made decisions to increase. They are now working out details and will announce higher prices as soon as this work has been completed.

Waits On Wages . . . The steel price outlook is for a series of increases affecting most producers and several products over the next several weeks. It is doubtful that the price situation will be fully clarified before question of the seventh wage round has been settled. That may not happen before the end of June.

None of the steel price increases reported this week and last were attributed to the seventh wage round. Steel firms are acting to improve profits on their huge investments.

Profits Darken . . . Despite booming steel business, the profit picture in the industry has been getting blacker, and steel officials have been outspoken in their disappointment. Any wage increase this summer is expected to be covered by further price increases in addition to current adjustments.

Steel price rises—with prospect of more to come—have not slowed the steel market. Consumer demand continues to amaze steel officials, some of whom now candidly admit they under-estimated the amount of steel manufacturers could use this year.

Sheet, Strip Lead . . . Sheet and strip demand is setting a blistering pace, and is beginning to take the play away from some of the items channeled more heavily into defense products. Some producers

are increasing their output of flat-rolled products at the expense of other steel items whenever possible.

Automotive conversion continues strong; it is now booked into third quarter, though some of this business carries cancellation clauses with penalties of \$25 to \$35 per ton.

Shells Take Bite . . . Mills are being hit with large increases in shell steel quotas—in addition to regular set-asides which have also been raised. Quota for one mill was boosted about 35 pct (from 6000 to 8000 tons per month on shell billets, and 9000 to 11,000 tons per month on spheroidized plates). These tonnages include 2 to 3.5-in. bars and 3x3-in., 4x4-in., and 5x5-in. billets. Increases will hold at least through third quarter.

Structural steel fabricators are as vocal as auto people in their cries for steel. Backlogs average 7 or 8 months, and business seems to be limited only by the amount of steel they are able to get from the mills. In view of outlook for little increase in production of structurals, some fabricators seem to be overbooking.

Scrap Stays Slow . . . The scrap market continues in the doldrums. Sharp declines of the past few weeks are continuing in most areas. This week THE IRON AGE Steel Scrap Composite Price fell \$1.67 a ton to \$39.33 per gross ton. This price composite has fallen \$4.92 per gross ton in 4 weeks since Mar. 31, and there is no assurance the decline has been arrested.

Steelmaking operations this week are scheduled at 100.5 pct of rated capacity, up one point from last week.



This is not our standard performance, but . . .

. . . it does happen, every once in awhile, that something like magic has to be conjured up, on a sudden problem involving some special service to a customer.

And this is when a compact, fast-moving, red-tape-cutting organization like Bristol Brass shows up at its best. Because here there are no handicaps of ponderous size, outworn traditions or hide-bound business procedures. Here, imagination and initiative are the pass keys to all problems that come up. Not that magic is Bristol's stock in trade — *it isn't*.

But it's there, when the chips are down, for any buyer of Bristol Brass sheet, rod or wire who finds himself in a jam, with time running out. Against such a time, note down this phone number — Bristol 9246.

The BRISTOL BRASS CORPORATION, makers of Brass since 1850 in Bristol, Conn. Offices or warehouses in Boston, Chicago, Cleveland, Dayton, Detroit, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, Providence, Rochester.

"Bristol-Fashion" means **Brass at its Best**

Mike Rails
and track su
called a move
ired. New
more fo
as Apr. 28.

Increase C
started at the
Steel Corp.,
arnegie, Pa
arily for U
ilities inc
ubeneer cla

Top Steel
months, t
ethlehem P
and Los Ang
total output
no expande
from 400 to
both hot- an

Accept Ste
Corp., Senti
ing orders
ounds, squa
4.70 per cw
ected to sta

STEEL
OPERA



Market Briefs and Bulletins

Hike Rails . . . Colorado Fuel & Iron Corp. raised rail and track supply prices early this week in what the firm called a move to equalize prices on items that were underpriced. New prices are \$6 a ton higher for rails, \$3 a ton more for accessories. Effective date of the boost is Apr. 28.

Increase Clad Metal Output . . . Limited production has started at the new \$7 million clad metal plant of Superior Steel Corp., adjacent to the company's main plant at Carnegie, Pa. The plant will manufacture clad metal primarily for U. S. Ordnance requirements. Superior's new facilities increase its monthly capacity for production of veneer clad metals by about 4000 tons.

Top Steel Record Again . . . For the second time in months, total combined monthly steel production at Bethlehem Pacific's plants in Seattle, south San Francisco and Los Angeles has broken the company's all-time record. Total output for March was 86,384 tons. Bethlehem has also expanded production at its Los Angeles bolt plant from 400 tons to 1200 tons per month. Output includes both hot- and cold-forged products.

Accept Steel Orders . . . Seidelhuber Steel Rolling Mill Corp., Seattle, has completed its 10 in. mill and is accepting orders for hot-rolled carbon steel bars, including rounds, squares, flats and reinforcing bars. Base price is \$4.70 per cwt. Production of hot-rolled alloy bars is expected to start soon and base price will be \$5.725 per cwt.

Nickel Restrictions . . . National Production Authority has amended Sched. 3 of M-6A to allow distributors of steel products to deliver nickel-bearing stainless steel to other distributors without controlled materials orders. Stainless acquired in this manner, however, may not be redelivered without NPA authorization. NPA has also broadened the list of items for which nickel, including nickel-bearing stainless may not be used. Approximately 40 more categories of products, including some types of processing equipment, have been added to Sched. A of M-80.

Lower Prices . . . Air Reduction Sales Co. has reduced prices on spooled wires for Aircomatic, Heliwelding and other inert-gas arcwelding processes. Materials covered by the price cut include aluminum, stainless steels and copper-base alloys.

Use Venezuelan Ore . . . U. S. Steel's Tennessee Coal & Iron Div., Birmingham, Ala., will begin using iron ore from the Cerro Bolivar mines of Venezuela early in 1954, just about the same time the Fairless Works will also start using ore from Venezuela.

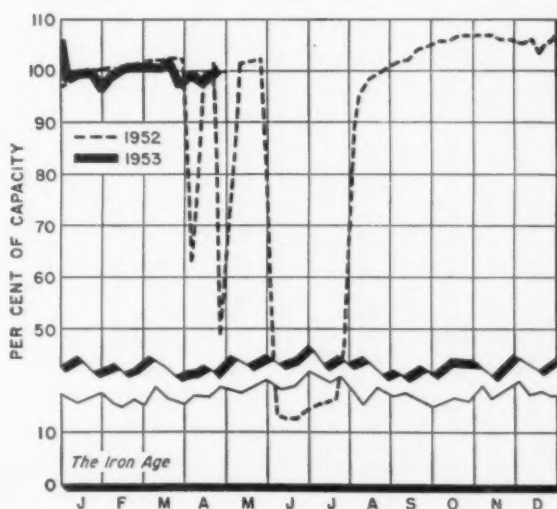
Order Cold Rolling Mills . . . Lewis Machinery Div. of Blaw-Knox Co. has received an order from American Brass Co., Waterbury, Conn., for two 10 in. and 29 in. x 36 in. four-high reversing cold-rolling mills. The mills will be installed at Torrington, Conn.

District Operating Rates

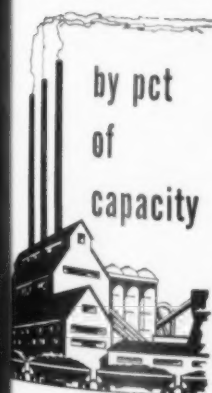
District	Week of Apr. 26	Week of Apr. 19
Pittsburgh	99.0	100.0*
Chicago	105.5	104.5
Philadelphia	95.5	94.0
Valley	102.0	103.0*
West	104.0	106.5*
Cleveland	97.0	97.0
Buffalo	94.0	94.0
Detroit	105.0	106.0*
Birmingham (South)	102.0	101.0
Wheeling	102.0	102.0*
South Ohio River	88.5	89.5
St. Louis	92.0	71.0
East	115.0	91.0*

AGGREGATE 100.5 99.5
Beginning Jan. 1, 1953, operations are based on annual capacity of 117,522,470 net tons.

* Revised



**STEEL
OPERATIONS**



Light's Green for Aluminum Stockpile

Government overrules industry, will resume stockpiling aluminum in second quarter . . . Goal not named . . . Stop all government magnesium plants but Velasco—By R. L. Hatschek.

Stockpiling of aluminum will be resumed during the current quarter. That's Washington's decision despite protests by producers that the action will necessitate continuing of allocations. It was also decided that specifications would not be lowered to accept some of the poorer quality metal that first comes out of brand new pots.

National Production Authority has ordered metal set aside for purchase by General Services Administration — but the quantity was not divulged.

GSA indicated that it has been negotiating with Olin Industries, Harvey Machine and Wheland Co. for purchases of stockpile aluminum. All three have portions of the third expansion round. Contracts have not been signed and there is no word on whether a subsidized price will be paid.

Cut Magnesium Output . . . Government production of magnesium is to be cut from an annual rate of 98,000 tons to 40,000 tons. With Dow Chemical Co.'s production of 28,000 tons annually, the production rate will now be approximately 5670 tons monthly. This compares with total monthly consumption of about 4000 tons.

The plants to be shut down are

at Painesville, O., Canaan, Conn., Wingdale, N. Y., Manteca, Calif., and Spokane, Wash. Production will end by June 30 but they'll all be held in readiness if requirements should increase—and they may.

Most Economical . . . Only government-owned plant to continue operations will be the one at Velasco, Tex., built and operated by Dow. This is the only one of the six which uses sea water, the others using dolomite or brine, and is the most economical. With the stockpile probably at 75,000 tons or so, it certainly isn't worth paying the high costs of the uneconomical plants.

The above figures should end any worries of titanium producers that there won't be enough magnesium for their production. Titanium production, of course, requires magnesium on a pound for pound basis.

Copper Prices Slide . . . Custom smelters last week reduced copper prices to below the 30¢-quotation of the big mine producers. Sales were made at both 29.50¢ and 29.75¢. Most smelters and ingot makers dropped out of the scrap market and, on appraisal, prices there are skidding faster.

Original prediction that copper would level off at about 29¢ now seem fairly accurate—if they level off here. Predictions in some circles now are that the red metal will wind up at about 25¢ to 27¢.

Western Copper Eases . . . Deliveries of most copper products in the West have markedly eased in the past few months and producers expect to be out of the woods by the third quarter. Hottest items are still wire and cable for industrial, utility and home wiring and construction. Other close ranking items are pipe and boiler tubing with deliveries ranging from out of stock to a few weeks.

Scrap Skids . . . Dealers' buying prices for copper were 1¢ lower at the beginning of the week with all other copper containing scrap of by that much or more. Aluminum, lead, zinc and most of the miscellaneous items are also lower this week. Only metal showing strength is nickel—now quoted at \$1 per lb.

Goals Covered . . . Enough certificates of necessity have been issued or are pending to cover revised expansion goals for copper foundries and brass mills. When current expansion is over by the end of 1954, the two industries will have spent more than \$10 million for new facilities since the start of the mobilization program.

Mobilization agencies last year estimated there should be an additional \$3.5 million worth of copper per foundry facilities. This has been revised upwards to \$5.5 million and is moving along right on schedule.

Brass Mills Cut . . . Original goal set for the brass mill industry was \$6.3 million in new facilities. But economy-minded officials now say this was over-estimated. This goal has been trimmed to \$4.5 million above pre-Korea facilities. And it isn't likely that any new certificates of necessity will be granted.

NONFERROUS METAL PRICES

(Cents per lb, except as noted)

	Apr. 22	Apr. 23	Apr. 24	Apr. 25	Apr. 27	Apr. 28
Copper, electro, Conn.	30.00	29.50-	29.50-	29.50-	29.50-	29.50-
		30.00	30.00	30.00	30.00	30.00
Copper, Lake, delivered						
Tin, Straits, New York	93.50	92.00	94.00		94.00	94.00*
Zinc, East St. Louis	11.00	11.00	11.00	11.00	11.00	11.00
Lead, St. Louis	11.80	11.80	11.80	11.80	11.80	11.80

Note: Quotations are going prices.

*Tentative



HERE IS HOW

ALTER COMPANY

CAN WORK FOR YOU

Trained specialists combine their knowledge and talents to produce alloys to exacting standards. Every heat of metal is under skillful metallurgical control from the "idea to the ingot."

If the standard master alloys which we manufacture are not suited to your needs, our research and production departments will work together to produce special alloys which will comply with your specifications. When you buy from Alter Company, YOU CAN BE SURE of unexcelled quality. Any product which bears our name is backed by over fifty years of experience and integrity.

STEEL MILL AND FOUNDRY ALLOYS

Copper Iron 70/30
Copper Iron 90/10
Copper Iron 95/5
Pure Copper Shot
Nickel Copper Shot 50/50

Nickel Copper Shot 70/30
Monel Ingot
Monel Shot
Ferro-Nickel 50/50 Ingot and Shot
Nickel Chrome 70/15 Ingot

Nickel Chrome 60/15 Ingot
Nickel Chrome 35/15 Ingot
Chromium Copper 5%
Chromium Copper 10%

ALTER

C O M P A N Y 1701 Rockingham Road, DAVENPORT, IOWA

Nonferrous Prices

(Effective Apr. 28, 1953)

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188-in., 2S, 3S, 32.9¢; 4S, 61S-O, 34.9¢; 52S, 37.2¢; 24S-O, 24S-OAL, 35.9¢; 75S-O, 75S-OAL, 43.6¢. 0.081-in., 2S, 3S, 34.1¢; 4S, 61S-O, 36.6¢; 52S, 38.9¢; 24S-O, 24S-OAL, 37.2¢; 75S-O, 75S-OAL, 45.7¢. 0.032-in., 2S, 3S, 36.9¢; 4S, 61S-O, 40.6¢; 52S, 43.5¢; 24S-O, 24S-OAL, 45.6¢; 75S-O, 75S-OAL, 57.0¢.

Plate, 1/4-in. and heavier: 2S-F, 3S-F, 30.9¢; 4S-F, 33.0¢; 52S-F, 34.7¢; 61S-O, 38.6¢; 24S-O, 24S-OAL, 35.4¢; 75S-O, 75S-OAL, 42.3¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.4¢ to 80.3¢; 12 to 14, 37.1¢ to 97.2¢; 24 to 26, 39.7¢ to 112.7¢; 36 to 38, 47.0¢ to 138.6¢.

Rod, Rolled: 1.064-in. to 4.5-in., 2S-F, 3S-F, 41.0¢ to 36.6¢; cold-finished, 0.375-in. to 3.499-in., 2S-F, 3S-F, 44.2¢ to 38.3¢.

Screw Machine Stock: Rounds, 11S-T3, 1/8 to 11/32-in., 58.4¢ to 45.9¢; 3/8 to 1 1/2-in., 45.3¢ to 42.6¢; 1 9/16 to 3-in., 42.0¢ to 39.3¢. Base 5000 lb.

Drawn Wire: Coiled 0.051 to 0.374-in., 2S, 43.2¢ to 31.7¢; 52S, 52.4¢ to 38.3¢; 17S-T4, 59.0¢ to 41.0¢; 61S-T4, 52.9¢ to 40.5¢.

Extruded Tubing: Rounds, 63S-T5, OD 1 1/4 to 2 in., 40.5¢ to 59.0¢; 2 to 4 in., 36.6¢ to 49.7¢; 4 to 6 in., 37.1¢ to 45.3¢; 6 to 9 in., 37.6¢ to 47.5¢.

Roofing Sheet: Flat, per sheet, 0.019-in., 28 x 72 in., \$1.247; x 96 in., \$1.662; x 120 in., \$2.077; x 144 in., \$2.494. Coiled sheet, per lb, 0.019 in. x 28 in., 30.8¢; 0.024 in. x 28 in., 29.3¢.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, 1/4 in., 66¢; 3/16 in., 68¢; 1/8 in., 70¢; B & S Gage 10, 71¢; 12, 75¢. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam 1/4 to 0.311 in., 77¢; 1/2 to 3/4 in., 60.5¢; 1 1/4 to 1.749 in., 56¢; 2 1/2 to 5 in., 61.5¢. Other alloys higher. Base up to 3/4 in. diam, 10,000 lb; 3/4 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.25 lb, 5.9 in., 62.3¢; 0.50 to 0.59 lb, 8.6 in., 59.7¢; 1.8 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6 lb, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/2 lb, 10,000 lb; 1/2 to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, 0.049 to 0.057 in. wall thickness; OD, 1/4 to 5/16 in., \$1.43; 5/16 to 3/4 in., \$1.29; 3/4 to 1 1/2 in., 96¢; 1 to 2 in., 79¢; 0.165 to 0.219 in. wall; OD, 3/4 to 1 in., 64¢; 1 to 2 in., 60¢; 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1 1/2 in., 10,000 lb; 1 1/2 to 3 in., 20,000 lb; over 3 in., 30,000 lb.

Titanium

(100,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheets and strip, HR or CR, \$15; Plate, HR, \$12; Wire, rolled and/or drawn, \$10; Bar, HR or forged, \$6; Forgings, \$6.

Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

	"A" Nickel Monel	Inconel
Sheet, CR	86 1/2	67 1/2
Strip, CR	92 1/2	70 1/2
Rod, bar	82 1/2	65 1/2
Angles, HR	82 1/2	65 1/2
Plate, HR	84 1/2	66 1/2
Seamless Tube	115 1/2	100 1/2
Shot, blocks	57	57

Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Extruded Shapes
Copper	48.51	46.83	50.58
Copper, h-r	50.48	48.08	50.58
Copper, drawn	45.99	45.68	45.68
Low brass	42.87	42.56	42.56
Yellow brass	47.11	46.80	46.80
Red brass	47.01	41.07	42.33
Naval brass	47.01	41.07	39.95
Lead brass	48.76	48.45	48.45
Comm. bronze	50.73	44.62	46.18
Mang. bronze	70.50	70.75	70.75
Muntz metal	44.91	40.47	41.72
NI silver, 10 pct	56.56	59.83	62.89

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed 20.50
Aluminum pig 19.50
Antimony, American, Laredo, Tex. 34.50
Beryllium copper, per lb conta'd Be \$40.00
Beryllium aluminum 5% Be, Dollars per lb contained Be \$72.75
Bismuth, ton lots 22.25
Cadmium, def'd 22.00
Cobalt, 97-99% (per lb) \$2.40 to \$2.47
Copper, electro, Conn. Valley 29.50 to 30.00
Copper, Lake, delivered 30.00
Gold, U. S. Treas., dollars per oz. \$35.00
Indium, 99.8%, dollars per troy oz. \$2.25
Iridium, dollars per troy oz. \$175 to \$185
Lead, St. Louis 11.80
Lead, New York 12.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb. 27.00
Magnesium, sticks, 100 to 500 lb. 45.00 to 47.00
Mercury, dollars per 76-lb. flask, f.o.b. New York \$195 to \$198
Nickel electro, f.o.b. N. Y. warehouse 63.08
Nickel oxide sinter, at Copper Creek, Ont., contained nickel 56.25
Palladium, dollars per troy oz. \$24.00
Platinum, dollars per troy oz. \$90 to \$93
Silver, New York, cents per oz. 85.25
Tin, New York 94.00
Titanium, sponge \$5.00
Zinc, East St. Louis 11.00
Zinc, New York 11.83
Zirconium copper, 50 pct \$6.20

REMELTED METALS

Brass Ingot

(Cents per lb, delivered carloads)

85-5-5-5 ingot
No. 115 27.50
No. 120 26.75
No. 123 26.00
80-10-10 ingot
No. 305 32.00
No. 315 29.75
88-10-2 ingot
No. 210 40.75
No. 215 37.75
No. 245 32.75
Yellow ingot
No. 405 22.75
Manganese bronze
No. 421 27.50

Aluminum Ingot

(Cents per lb def'd., 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper, max. 24.50-26.00
0.60 copper, max. 24.25-25.50
Piston alloys (No. 122 type) 22.50-24.00
No. 12 alum. (No. 2 grade) 22.00-22.50
108 alloy 22.50-23.50
195 alloy 22.75-24.00
13 alloy (0.60 copper max.) 24.25-24.75
ASX-679 22.50-23.50

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97 1/2 % 23.00-26.00
Grade 2—92-95 % 22.50-24.50
Grade 3—90-92 % 22.00-23.50
Grade 4—85-90 % 20.50-23.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 5000 lb lots)

Copper
Cast, oval, 15 in. or longer 45.14
Electrodeposited 37.98
Flat rolled 45.64
Brass, 80-20
Cast, oval, 15 in. or longer 43.515
Zinc, flat cast 20.25
Ball, anodes 18.50
Nickel, 99 pct plus 79.50
Cast 80.50
Roller, depolarized 82.15
Cadmium
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn. 94 1/2

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum 63
Copper sulfate, 99.5 crystals, bbl. 12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed 30.00
Nickel chloride, 375 lb drum 38.00
Silver cyanide, 100 oz lots, per oz. 75 1/2
Sodium cyanide, 96 pct domestic 200 lb drums 19.25
Zinc cyanide, 100 lb drum 47.7

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over.)

	Heavy	Turnings
Copper	28 1/2	27 1/2
Yellow brass	21 1/2	19 1/2
Red brass	25 1/2	24 1/2
Comm. bronze	26 1/2	25 1/2
Mang. bronze	20	19 1/2
Brass rod ends	19 1/2	

Custom Smelters' Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 22 1/2-23
No. 2 copper wire 20-21
Light copper 19-20
Light copper 19-20
*Refinery brass 20
*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire 22 1/2-23
No. 2 copper wire 20-21
Light copper 19-20
No. 1 composition 18-19
No. 1 comp. turnings 17 1/2-18
Rolled brass 14-15
Brass pipe 15-16
Radiators 14-15

Aluminum

Mixed old cast 13-14
Mixed new clips 13-15
Mixed turnings, dry 12 1/2-14
Pots and pans 13-13 1/2

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire 22-23
No. 2 heavy copper and wire 19-20
Light copper 17 1/2-18
New type shell cuttings 17 1/2-18
Auto radiators (unswaged) 13-13 1/2
No. 1 composition 17-17 1/2
No. 1 composition turnings 16 1/2-17
Unlined red car boxes 16-16 1/2
Cocks and faucets 15-15 1/2
Mixed heavy yellow brass 11 1/2-12
Old rolled brass 14-15
Brass pipe 16-16 1/2
New soft brass clippings 17 1/2-18
Brass rod ends 16 1/2-17
No. 1 brass rod turnings 16-16 1/2

Aluminum

Alum. pistons and struts 5
Aluminum crankcases 8
2S aluminum clippings 11 1/2
Old sheet and utensils 8
Borings and turnings 5
Misc. cast aluminum 8
Dural clips (24S) 9

Zinc

New zinc clippings 44
Old zinc 40
Zinc routings 24
Old die cast scrap 34

Nickel and Monel

Pure nickel clippings 100
Clean nickel turnings 60-70
Nickel anodes 100
Nickel rod ends 100
New Monel clippings 33-35
Clean Monel turnings 25
Old sheet Monel 30-32
Nickel silver clippings, mixed 14
Nickel silver turnings, mixed 12

Lead

Soft scrap, lead 8 1/2-9 1/2
Battery plates (dry) 4 1/2-4 3/4
Batteries, acid free 3 1/2

Magnesium

Segregated solids 15-16
Castings 14-15

Miscellaneous

Block tin 80
No. 1 pewter 55
No. 1 auto babbitt 45
Mixed common babbitt 13 1/2-14
Solder joints 15
Siphon tops 14
Small foundry type 11 1/2-12
Monotype 10 1/2-11
Lino. and stereotype 8 1/2-9
Electrotype 7
Hand picked type shells 3 1/2
Lino. and stereo. dross 3
Electro dross 3

5 Reproducible Results Economically Obtained

Hundreds of heats made with
MCA Ferro-Boron have shown
no fading effect in proper-
ties, from first to last ingot

**users of FERRO-BORON in Steel Making
find these advantages**



Having successfully developed and introduced the use of Boron in commercial steels (U. S. Patents 2,283,299 and 2,509,281), the Molybdenum Corporation is qualified by years of research and practical experience to advise the steel maker and to supply his needs for the most satisfactory production of Boron Steels.

As a supplier of Molybdenum, Tungsten, Boron and Rare Earth Materials, the Molybdenum Corporation invites and solicits correspondence.

Advantages of Boron:

1. Ample Supplies, all from U.S.A.
2. Lessened Scrap Troubles
3. Heat-Treating Cycles Unaltered
4. Machinability Unimpaired
5. Reproducible Results, Economically Obtained

MOLYBDENUM

CORPORATION OF AMERICA

Grant Building

Pittsburgh 19, Pa.

Offices: Chicago, Cleveland, Detroit, Los Angeles, New York, Pittsburgh, San Francisco

Sales Representatives: Edgar L. Fink, Detroit; Brumley-Donaldson Co., Los Angeles, San Francisco

Subsidiary: Cleveland-Tungsten, Inc., Cleveland, Ohio



April 30, 1953

Buying Drought Works Hardship on Trade

Mill reluctance to buy causes worry in scrap market . . . The trend continues down almost everywhere . . . High stocks and spring scrap thaw main culprits . . . Some other reasons.

Reluctance of steel mills to buy substantial tonnages of scrap in what should have been the traditional buying season is working a real hardship on the scrap industry. Shadows of still-heavy stockpiles are chilling the buying attitude of consumers and a further depressant is increase of scrap availability with warm weather. Inventory piled up after the '52 steel strike and a mild winter kept scrap coming.

Dealers and brokers report much material being dammed up. Not only have mills braked buying but many scrap traders refuse to speculate on purchases in the face of what seems to be continual downward market spiral.

If May does not bring a resurgence of buying, many scrap sources will inevitably wither. Yards in the deep South say their sources will dry up because prices they must pay to compete with northern mills are much too low.

How much of the current buying apathy can be pinned to expectations of a lower steelmaking rate later this year is a speculative subject. But some scrap men insist this thought lies in the buyer's mind. Others also say most consumers are content to let the scrap market *shake itself down* to new low price levels since there is no pressing urgency to do any heavy buying now.

Price cuts in steel and turnings grades were general in almost all areas. Pessimism on the future of the price trend was present everywhere.

Pittsburgh—Prices tumbled sharply here this week. Further declines were forecast. While trading was limited to secondary openhearth grades for the most part, top grades dropped \$3 per ton on appraisal. A large con-

sumer established a price of \$36 on No. 2 steel and \$34 on No. 2 bundles, a decline of \$3 per ton. Blast furnace grades, railroad scrap, and cast followed the downward trend. The market was so shaky that a leveling off point was nowhere in sight.

Chicago—Scrap was practically at a standstill in nearly all grades this week. Short brokers were indicating that their buying of the previous week has been confirmed. Little was moving on speculation and turning buyers seemed content to wait. Railroad specialties were skidding badly, and rejections of even forge crop were increasingly reported. Steel scrap was sluggish.

Philadelphia—Market here is definitely lagging behind the nosedives of other areas—but not far. Latest buying of No. 1 heavy melting and bundles pegged the price at \$41 to \$42. No. 2 steel was unchanged but No. 2 bundles sagged \$2. Turnings are off \$1 to \$2 and low phos is \$1 cheaper. Some cast grades also dropped \$2. Trading is very slow and only high quality material is accepted.

New York—The steelmaking grade price structure edged downward from previously low levels. No. 1 heavy stood at \$34.50—\$35.00 after sliding slightly last week. Turnings held at low levels set last week. Two major consumers still had the red light up to scrap and there seems to be no relief from the down tone of the market.

Detroit—Scrap was at a complete standstill and speculation centered around automotive lists closing this week. Pending results of this bidding, few sales were reported other than directed scrap. No. 2 bundles took the sharpest drop with a significant tonnage confirmed at \$26.06 to establish this price. Other secondary grades continued their downward trend. Cast also dropped.

Cleveland—Scrap prices were still sliding downhill this week. But the

feeling is that No. 1 bundles will firm up at the old ceiling. Mills aren't doing much buying, but some steelmaking grades are moving on allocation. No. 1 heavy melting stands at \$38—\$39 on appraisal. Secondary cast finally followed steelmaking grades downhill this week as stove plate dropped \$2 to \$44.

Birmingham—Only a limited number of orders for scrap were received in the district this week. Most dealers were completing contracts received earlier in the month. Many fear further price cuts in May and are taking a dim view of the future. Those in the deep South say they cannot compete with northern yards on a delivered price basis to northern mills and that prices they can pay are drying up their source of supply.

St. Louis—With steel mills here out of the market entirely because of heavy inventories it has become purely a dealers' market for scrap iron. Dealers have cut deeply into prices they will pay for scrap iron, taking a chance on the future. There is plenty of material to be had at the prices they are willing to pay. Mills are watching deadlines for deliveries of shipments under contract, and are quick to cancel if delayed.

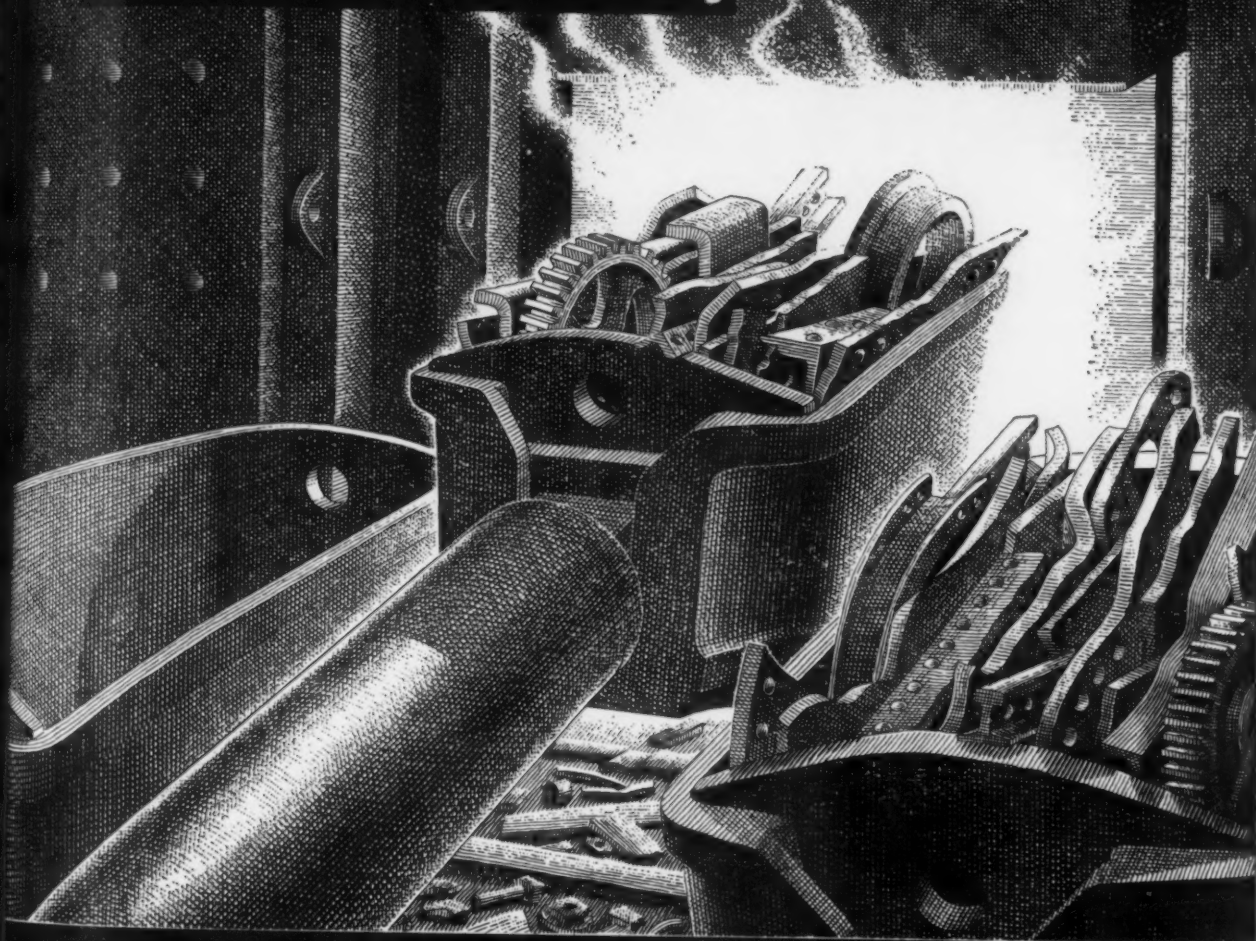
Cincinnati—Dealers and brokers in this area expect prices to drop even farther when one large consumer comes into the market at week's end. Most pronounced weakness is noted in No. 2 bundles. Turnings market is so bad one dealer says, "Any sale is a good sale."

Boston—Biggest price drop in years was registered in the New England scrap market this week. Top range of No. 1 heavy held at the old figure due to local buying which did not include bundles. No. 1 bundles are off \$4.17, No. 2 bundles off \$6 to \$8, and No. 2 steel off \$5 to \$7. Turnings and some cast grades slipped.

West Coast—Although prices were unchanged last week in the area, the Los Angeles market was very weak and another price drop was expected this week when contracts for May are announced. A price drop of \$2 on No. 1 bundles to \$27 is definitely expected and an across-the-board cut of \$1 or \$2 is possible.

SCRAP *at your Service!*

The facilities and experienced personnel in each of our offices, stand ready to supply your every scrap requirement whenever and wherever needed.



CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP
LURIA BROTHERS AND COMPANY, INC.

OFFICES

BIRMINGHAM, ALA. DETROIT, MICH. PITTSBURGH, PENNA.
 BOSTON, MASS. HOUSTON, TEXAS PUEBLO, COLORADO
 BUFFALO, N. Y. LEBANON, PENNA. READING, PENNA.
 CHICAGO, ILLINOIS LOS ANGELES, CAL. ST. LOUIS, MO.
 CLEVELAND, OHIO NEW YORK, N. Y. SAN FRANCISCO, CAL.
 SEATTLE, WASH.

MAIN OFFICE
LINCOLN-LIBERTY BLDG.
 Philadelphia 7, Penna.

PLANTS

LEBANON, PENNA. DETROIT (ECORSE), MICHIGAN
 READING, PENNA. PITTSBURGH, PENNA.
 MODENA, PENNA. ERIE, PENNA.



LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Scrap Prices

(Effective Apr. 28, 1953)

Pittsburgh

No. 1 hvy. melting	\$29.00 to \$40.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	39.00 to 40.00
No. 2 bundles	36.00 to 37.00
Machine shop turn.	27.50 to 28.00
Mixed bor. and ms. turns.	27.50 to 28.00
Shoveling turnings	32.00 to 33.00
Cast iron borings	31.00 to 32.00
Low phos. punch'gs, plate	45.00 to 46.00
Heavy turnings	38.00 to 39.00
No. 1 RR. hvy. melting	43.00 to 44.00
Scrap rails, random lgth.	45.00 to 46.00
Rails 2 ft and under	51.00 to 52.00
RR. steel wheels	51.50 to 52.50
RR. spring steel	51.50 to 52.50
RR. couplers and knuckles	51.50 to 52.50
No. 1 machinery cast.	49.00 to 50.00
Cupola cast.	40.00 to 41.00
Heavy breakable cast.	39.00 to 40.00
Malleable	45.00 to 46.00

Chicago

No. 1 hvy. melting	\$36.00 to \$38.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 factory bundles	39.00 to 40.00
No. 1 dealers' bundles	37.00 to 39.00
No. 2 dealers' bundles	33.00 to 34.00
Machine shop turn.	18.00 to 20.00
Mixed bor. and turn.	18.00 to 20.00
Shoveling turnings	18.50 to 20.50
Cast iron borings	18.00 to 20.00
Low phos. forge crops	46.00 to 48.00
Low phos. punch'gs, plate	41.00 to 43.00
Low phos. 3 ft and under	41.00 to 43.00
No. 1 RR. hvy. melting	42.00 to 44.00
Scrap rails, random lgth.	46.00 to 48.00
Rerolling rails	48.00 to 49.00
Rails 2 ft and under	53.00 to 54.00
Locomotive tires, cut	47.00 to 49.00
Cut bolsters & side frames	48.00 to 49.00
Angles and splice bars	50.00 to 51.00
RR. steel car axles	56.00 to 57.00
RR. couplers and knuckles	48.00 to 49.00
No. 1 machinery cast.	44.00 to 45.00
Cupola cast.	41.00 to 42.00
Heavy breakable cast.	36.00 to 37.00
Cast iron brake shoes	37.00 to 38.00
Cast iron car wheels	42.00 to 43.00
Malleable	42.00 to 43.00
Stove plate	37.00 to 38.00

Philadelphia Area

No. 1 hvy. melting	\$41.00 to \$42.00
No. 2 hvy. melting	38.00 to 39.00
No. 1 bundles	41.00 to 42.00
No. 2 bundles	33.00 to 34.00
Machine shop turn.	28.00 to 29.00
Mixed bor., short turn.	32.00 to 33.00
Shoveling turnings	33.00 to 34.00
Clean cast chem. borings	41.50 to 42.00
Low phos. 5 ft and under	43.50 to 44.50
Low phos. 2 ft and under	45.00 to 46.00
Low phos. punchings	45.50 to 46.50
Elec. furnace bundles	43.50 to 44.50
Heavy turnings	39.50 to 40.50
RR. steel wheels	51.00 to 52.00
RR. spring steel	51.00 to 52.00
Rails 18 in. and under	58.00 to 59.00
Cupola cast.	39.00 to 40.00
Heavy breakable cast.	43.50 to 44.50
Cast iron car wheels	46.00 to 47.00
Malleable	46.00 to 47.00
Unstripped motor blocks	31.00 to 32.00
No. 1 machinery cast.	47.00 to 48.00
Charging box cast.	40.00 to 41.00

Cleveland

No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	33.00 to 34.00
No. 1 busheling	38.00 to 39.00
Machine shop turn.	24.00 to 25.00
Mixed bor. and turn.	28.00 to 29.00
Shoveling turnings	28.00 to 29.00
Cast iron borings	28.00 to 29.00
Low phos. 2 ft and under	47.00 to 48.00
Drop forge flashings	41.00 to 42.00
No. 1 RR. hvy. melting	45.00 to 46.00
Rails 3 ft and under	53.00 to 54.00
Rails 18 in. and under	56.00 to 57.00
Railroad grate bars	40.00 to 41.00
Steel axle turnings	42.00 to 43.00
Railroad cast	49.00 to 50.00
No. 1 machinery cast.	51.00 to 52.00
Stove plate	43.00 to 44.00
Malleable	50.00 to 51.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Youngstown

No. 1 hvy. melting	\$39.00 to \$40.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	39.00 to 40.00
No. 2 bundles	35.00 to 36.00
Machine shop turn.	25.00 to 26.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	29.00 to 30.00
Low phos. plate	47.00 to 48.00

Buffalo

No. 1 hvy. melting	\$42.00 to \$43.00
No. 2 hvy. melting	38.00 to 39.00
No. 1 busheling	42.00 to 43.00
No. 1 bundles	42.00 to 43.00
No. 2 bundles	37.00 to 38.00
Machine shop turn.	24.00 to 25.00
Mixed bor. and turn.	27.00 to 28.00
Shoveling turnings	27.00 to 28.00
Cast iron borings	27.00 to 28.00
Low phos. plate	44.00 to 45.00
Scrap rails, random lgth.	45.75 to 46.75
Rails 2 ft and under	51.75 to 52.75
RR. steel wheels	50.75 to 51.75
RR. spring steel	50.75 to 51.75
RR. couplers and knuckles	50.75 to 51.75
No. 1 machinery cast.	44.00 to 45.00
No. 1 cupola cast.	40.00 to 41.00

Detroit

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$36.00 to \$37.00
No. 2 hvy. melting	32.00 to 32.50
No. 1 bundles, openhearth	40.00 to 40.50
No. 2 bundles	25.50 to 26.00
Heavy turnings	29.00 to 30.00
New busheling	39.00 to 40.00
Drop forge flashings	39.00 to 40.00
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	20.00 to 21.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Electric furnace bundles	42.00 to 43.00
Low phos. punch'gs, plate, heavy	43.50 to 44.50
Low phos. punch'gs, plate, light	41.00 to 42.00
No. 1 cupola cast.	44.00
Heavy breakable cast.	40.00
Stove plate	41.00
Automotive cast.	48.00

St. Louis

No. 1 hvy. melting	\$34.00 to \$35.00
No. 2 hvy. melting	31.00 to 32.00
No. 2 bundled sheets	30.00 to 32.00
Machine shop turn.	18.00 to 20.00
Shoveling turnings	18.00 to 20.00
Cast iron borings	15.00 to 16.00
Rails, random lengths	41.00 to 42.00
Rails 18 in. and under	50.00 to 52.00
Locomotive tires, uncut.	47.00 to 48.00
Angles and splice bars	49.00 to 50.00
Std. steel car axles	50.00 to 52.00
RR. spring steel	48.00 to 49.00
Cupola cast.	42.00 to 43.00
Hvy. breakable cast.	50.00 to 52.00
Cast iron brake shoes	39.00 to 40.00
Stove plate	38.00 to 39.00
Cast iron car wheels	46.00 to 47.00
Malleable	35.00 to 36.00
Unstripped motor blocks	36.00 to 38.00

New York

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$34.00 to \$35.00
No. 2 hvy. melting	30.00 to 30.50
No. 2 bundles	27.00 to 28.00
Low phos. 2 ft and less.	39.00 to 40.00
Machine shop turn.	20.00 to 21.00
Mixed bor. and turn.	20.00 to 21.00
Shoveling turnings	23.00 to 23.50
Clean cast chem. borings	32.00 to 33.00
No. 1 machinery cast.	43.00 to 44.00
Mixed yard cast.	37.00
Charging box cast.	37.00 to 38.00
Heavy breakable cast.	37.00 to 38.00
Unstripped motor blocks	25.00

Birmingham

No. 1 hvy. melting	\$35.50 to \$36.50
No. 2 hvy. melting	33.00 to 34.00
No. 1 bundles	35.50 to 36.50
No. 2 bundles	31.00 to 32.00
No. 1 busheling	35.50 to 36.50
Machine shop turn.	26.00 to 27.00
Shoveling turnings	28.00 to 29.00
Cast iron borings	28.00 to 29.00
Electric furnace bundles	37.00 to 38.00
Bar crops and plate	44.00 to 45.00
Structural and plate, 2 ft.	44.00 to 45.00
No. 1 RR. hvy. melting	38.00 to 39.00
Scrap rails, random lgth.	42.00 to 43.00
Rerolling rails	46.00 to 47.00
Rails, 18 in. and under	46.00 to 47.00
Angles & splice bars	46.00 to 47.00
Std. steel axles	46.00 to 47.00
No. 1 cupola cast.	40.00 to 41.00
Stove plate	36.50 to 37.50
Cast iron car wheels	46.00 to 47.00
Charging box cast.	30.00 to 31.00
Heavy breakable	30.00 to 31.00
Unstripped motor blocks	34.00 to 35.00
Mashed tin cans	24.00 to 25.00

Boston

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$30.00 to \$34.17
No. 2 hvy. melting	25.00
No. 1 bundles	30.00
No. 2 bundles	22.00
No. 1 busheling	31.00 to 32.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and short turn.	20.00
Shoveling turnings	20.00
Clean cast chem. borings	31.17
Mixed cupola cast.	30.00 to 31.00
Heavy breakable cast.	32.00 to 33.00
Stove plate	28.00 to 29.00
Unstripped motor blocks	27.25

Cincinnati

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$39.50 to \$40.50
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	40.50 to 41.50
No. 2 bundles	32.00 to 33.00
Machine shop turn.	22.00 to 23.00
Mixed bor. and turn.	24.00 to 25.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Low phos. 18 in. & under	48.00 to 49.00
Rails, random lengths	44.00 to 45.00
Rails, 18 in. and under	53.00 to 54.00
No. 1 cupola cast.	42.00 to 43.00
Hvy. breakable cast.	37.00 to 38.00
Drop broken cast.	49.00 to 50.00

San Francisco

No. 1 hvy. melting	\$30.00
No. 2 hvy. melting	26.00
No. 1 bundles	29.00
No. 2 bundles	24.00
No. 3 bundles	20.00
Machine shop turn.	12.00
Cast iron borings	16.00
No. 1 RR. hvy. melting	37.00
No. 1 cupola cast.	\$37.00 to 40.00

Los Angeles

No. 1 hvy. melting	\$30.00
No. 2 hvy. melting	24.00
No. 1 bundles	28.00
No. 2 bundles	24.00
No. 3 bundles	20.00
Mach. shop turn.	12.00
Shoveling turnings	16.00
Cast iron borings	16.00
Elec. fur. 1 ft and under	33.00
No. 1 RR. hvy. melting	37.00
No. 1 cupola cast.	39.00

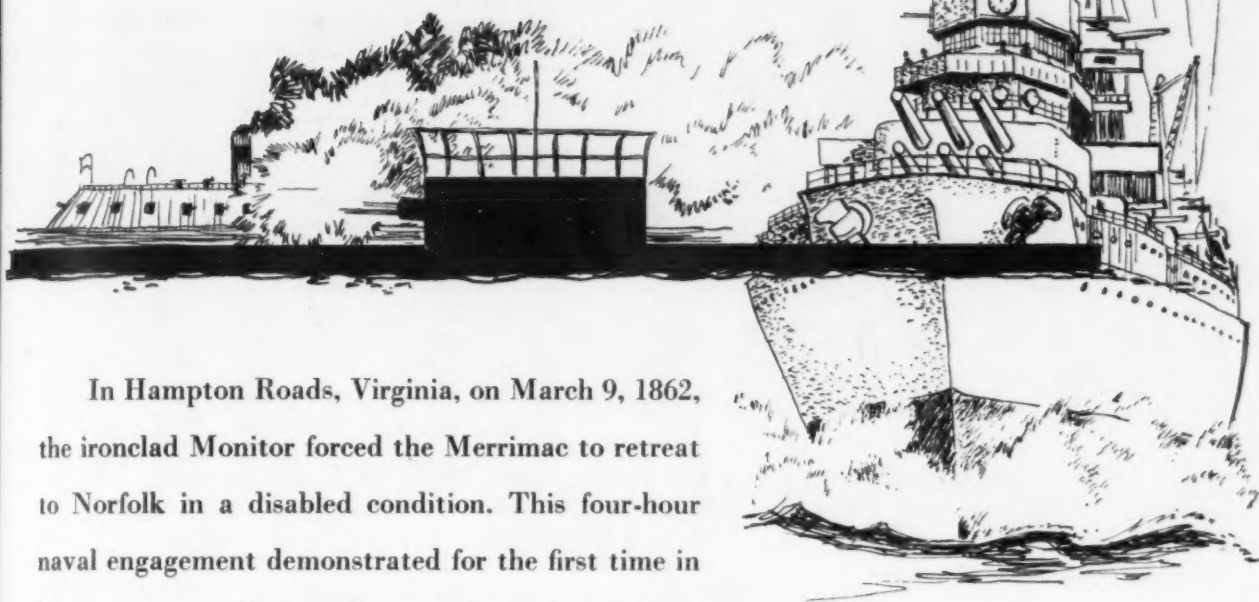
Seattle

No. 1 hvy. melting	\$33.00
No. 2 hvy. melting	29.00
No. 1 bundles	32.00
No. 2 bundles	26.00
No. 3 bundles	27.00
Mixed yard cast.	36.00

Hamilton, Ont.

No. 1 hvy. melting	\$26.50
No. 1 bundles	25.50
No. 2 bundles	25.00
Mechanical bundles	33.50
Mixed steel scrap	31.50
Bushellings	30.50
Bush., new fact. prep'd.	33.50
Bush., new fact. unprep'd.	32.50
Short steel turnings	32.50
Mixed bor. and turn.	25.50
Rails, remelting	44.50
Rails, rerolling	50.00
Cast scrap	50.00

cheese box on a raft



In Hampton Roads, Virginia, on March 9, 1862, the ironclad Monitor forced the Merrimack to retreat to Norfolk in a disabled condition. This four-hour naval engagement demonstrated for the first time in history the superiority of armored vessels—and put to an end the construction of wooden ships of war.

For today's "Monitors," for guns, tanks, planes—and for the thousands of tools for industry, agriculture and commerce—steel is vitally needed, in millions of tons. To meet these requirements, 3,000 carloads of scrap must be made available every day.

For the purchase or sale of iron or steel scrap...

phone or write "Your Chicago Broker"



231 S. La Salle St., Chicago

Telephone ANdover 3-3900

Comparison of Prices

(Effective Apr. 28, 1953)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	Apr. 28 1953	Apr. 21 1953	Mar. 31 1953	Apr. 29 1952
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	3.775¢	3.775¢	3.775¢	3.60¢
Cold-rolled sheets	4.575	4.575	4.575	4.35
Galvanized sheets (10 ga)	5.075	5.075	5.075	4.80
Hot-rolled strip	3.725	3.725	3.725	3.50
Cold-rolled strip	5.20	5.20	5.20	4.75
Plate	3.90	3.90	3.90	3.70
Plates wrought iron	9.00	9.00	9.00	7.85
Strains C-R strip (No. 302)	36.75†	36.75†	36.75†	36.75
Tin and Ternplate: (per base box)				
Tinplate (1.50 lb.) cokes	\$8.95	\$8.95	\$8.95	\$8.70
Tinplate, electro (0.50 lb.)	7.65	7.65	7.65	7.40
Special coated mfg. ternes.	7.75	7.75	7.75	7.50
Bars and Shapes: (per pound)				
Merchant bars	3.95¢	3.95¢	3.95¢	3.70¢
Cold finished bars	4.925	4.925	4.925	4.55
Alloy bars	4.675	4.675	4.675	4.30
Structural shapes	3.85	3.85	3.85	3.65
Stainless bars (No. 302)	31.50†	31.50†	31.50†	31.50
Wrought iron bars	10.05	10.05	10.05	9.50
Wire: (per pound)				
Bright wire	5.225¢	5.225¢	5.225¢	4.85¢
Rails: (per 100 lb.)				
Heavy rails	\$3.775	\$3.775	\$3.775	\$3.60
Light rails	4.25	4.25	4.25	4.00
Semifinished Steel: (per net ton)				
Re-rolling billets	\$59.00	\$59.00	\$59.00	\$56.00
Slabs, re-rolling	59.00	59.00	59.00	56.00
Forging billets	70.50	70.50	70.50	66.00
Alloy blooms, billets, slabs	76.00	76.00	76.00	70.00
Wire Rod and Skelp: (per pound)				
Wire rods	4.325¢	4.325¢	4.325¢	4.10¢
Skelp	3.55	3.55	3.55	3.35

† Add 4.7 pct to base and extras.

Composite: (per pound)

Finished steel base price 4.376¢ 4.376¢ 4.376¢ 4.131¢

	Apr. 28 1953	Apr. 21 1953	Mar. 31 1953	Apr. 29 1952
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	\$60.69	\$60.69	\$60.69	\$57.97
Foundry, Valley	55.00	55.00	55.00	52.50
Foundry, Southern, Cin'ti	58.93	58.93	58.93	55.58
Foundry, Birmingham	51.38	51.38	51.38	48.88
Foundry, Chicago†	55.00	55.00	55.00	52.50
Basic del'd Philadelphia	59.77	59.77	59.77	57.09
Basic, Valley furnace	54.50	54.50	54.50	52.00
Malleable, Chicago†	55.00	55.00	55.00	52.50
Malleable, Valley	55.00	55.00	55.00	52.50
Ferromanganese‡	226.25	226.25	226.25	186.25

† The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡ Average of U. S. Prices quoted on Ferroalloy pages.

Composite: (per gross ton)

Pig iron	\$55.26	\$55.26	\$55.26	\$52.72
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	\$39.50	\$42.50	\$44.75	\$43.00*
No. 1 steel, Phila. area	41.50	42.50	44.50	41.50*
No. 1 steel, Chicago	37.00	38.00	43.50	41.50*
No. 1 bundles, Detroit	40.25	40.50	40.50	41.15*
Low phos., Youngstown	47.50	49.50	49.50	46.50*
No. 1 mach'y cast, Pittsburgh	49.50	50.50	52.50	52.75
No. 1 mach'y cast, Philadel'a.	47.50	47.50	49.00	52.00*
No. 1 mach'y cast, Chicago	44.50	45.50	46.00	45.75

* Basing pt., less broker's fee. † Shipping pt., less broker's fee. Delivered prices, including broker's fee, unless otherwise noted.

Composite: (per gross ton)

No. 1 heavy melting scrap	\$39.33	\$41.00	\$44.25	\$42.00
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	\$14.75	\$14.75	\$14.75	\$14.75
Foundry coke, prompt	17.25	17.25	17.25	17.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	29.75†	30.00†	31.00†	24.50
Copper, Lake, Conn.	32.25	32.25	32.25	24.025
Tin, Straits, New York	94.00†	94.50*	\$1.20	\$1.21½
Zinc, East St. Louis	11.00	11.00	11.00	10.50
Lead, St. Louis	11.80	11.80	13.30	17.80
Aluminum, virgin ingot	20.50	20.50	20.50	19.00
Nickel, electrolytic	63.08	63.08	63.08	59.58
Magnesium, ingot	27.00	27.00	27.00	24.50
Antimony, Laredo, Tex.	34.50	34.50	34.50	44.00

† Tentative. ‡ Average. * Revised.

Composite Price Notes

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Scrap Steel Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Warehouse Price Notes

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may not be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets, for quantity.

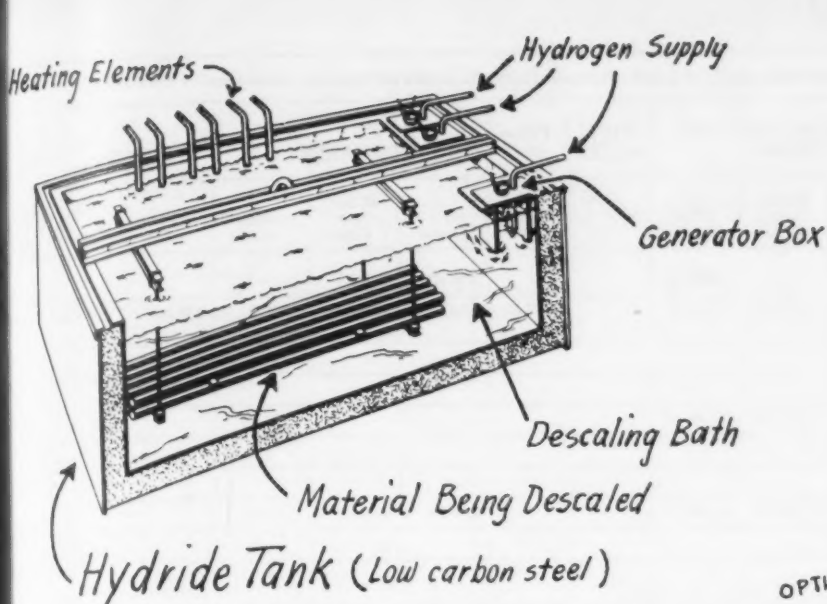
Exceptions: (1) 500 to 1499 lb, (2) 6000 lb or over, (3) 450 to 1499 lb, (4) 2000 to 3999 lb.

WARE-HOUSES

Base price, f.o.b., dollars per 100 lb.

City	City Delivery Charge	Sheets			Strip		Plates		Shapes		Bars		Alloy Bars				
		Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled	Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled A 4815 As rolled	Hot-Rolled A 4815 Annealed	Cold-Drawn A 4815 As rolled	Cold-Drawn A 4815 Annealed	Cold-Drawn A 4815 As rolled	Cold-Drawn A 4815 Annealed	Cold-Drawn A 4815 As rolled	Cold-Drawn A 4815 Annealed
Baltimore	\$20	5.81	7.17	7.38-8.04	6.42	.....	6.05	6.47	6.41	7.18-7.43	.....	.....	.....	.....	.....	.....	.....
Birmingham	15	5.80	6.65	7.70†	5.80	.....	6.10	5.95	5.80	7.85	.....	.....	.....	.....	.....	.....	.....
Boston	20	6.45-6.52	7.35-7.71	8.34-8.39	6.55	8.50‡	6.75-6.80	6.56	6.42	7.46-7.54	10.85	11.15-11.17	12.85	13.15-13.18	.....	.....	.....
Buffalo	20	5.77-5.80	6.60-6.65	8.31	6.00	.....	6.30-6.40	6.08-6.15	5.78-5.80	6.95-6.95	10.70	11.00-11.07	12.70	13.00-13.07	.....	.....	.....
Chicago	20	5.80-5.81	6.65-6.65	7.90	5.83-5.84	.....	5.95-6.00	5.95	5.83	6.56-6.80	.....	10.65	12.65	.....	.....	.....	.....
Cincinnati	15	6.13	6.72	8.21	6.14	.....	6.47	6.42	6.13	7.16	.....	11.07	13.07	.....	.....	.....	.....
Cleveland	20	5.80-5.81	6.65-6.65	8.04	6.00-6.01	.....	6.12-6.17	6.28	5.89	6.66-6.90	.....	10.79	12.79	.....	.....	.....	.....
Denver	.....	7.17-7.39	8.23-8.23	9.60	7.43-7.69	8.90	7.37-7.54	7.50-7.71	7.61-7.88	8.24-8.48	.....	.....	.....	.....	.....	.....	.....
Detroit	20	5.99-6.00	6.81-6.90	8.59	6.13-6.34	7.29-7.85	6.45-6.47	6.42-6.47	6.12-6.17	7.10-7.23	10.72	11.02-11.07	12.72	13.02-13.07	.....	.....	.....
Houston	20	6.35-6.74	7.00-7.78	8.62-8.70	6.70-6.95	.....	6.60-6.85	6.60-7.00	6.75-9.35	9.00-9.35	11.90	11.35-11.90	13.60	13.90	.....	.....	.....
Kansas City	20	6.47	7.31	8.62	6.51	.....	6.62-6.67	6.62	6.50	7.57	.....	11.32	.....	.....	.....	.....	.....
Los Angeles	20	6.60	8.45	8.45	6.70	9.15	6.70	6.60	6.60	8.35-8.65	.....	12.05	14.00	.....	.....	.....	.....
Memphis	10	6.56	7.40	.....	6.98	.....	6.71	6.71	6.59	7.77	.....	.....	.....	.....	.....	.....	.....
Milwaukee	20	5.97-6.16	6.82-6.82	8.07	6.00-6.20	.....	6.12-6.36	6.12-6.31	6.00-6.19	6.83-8.07	.....	10.82	12.82	.....	.....	.....	.....
New Orleans	15	6.28	7.12	.....	6.32	8.32	6.43	6.43	6.31	7.85	.....	.....	.....	.....	.....	.....	.....
New York	30	6.11-6.62	7.27-7.41	8.07-8.53	6.56-6.72	8.94	6.60-6.88	6.34-6.39	6.59-6.65	7.46-7.53	10.66-10.74	10.91-11.04	12.67-12.74	12.97-13.04	.....	.....	.....
Norfolk	20	6.75	.....	7.30	.....	.....	6.65	6.65	6.55	8.30	.....	.....	.....	.....	.....	.....	.....
Philadelphia	25	6.11	7.13	7.95-8.30	6.45-6.46	.....	6.24-6.28	6.17	6.42	7.45	.....	10.67-10.79	12.79	.....	.....	.....	.....
Pittsburgh	20	5.80-5.81	6.65-6.65	7.90	5.94-5.97	.....	5.95-6.00	5.95	5.83	6.66-6.90	.....	10.65	12.65	.....	.....	.....	.....
Portland	20	7.80	9.05	9.15-9.30	7.50	.....	7.05	7.25	7.25	9.40	.....	.....	.....	.....	.....	.....	.....
Salt Lake City	20	8.30	.....	10.90‡	8.45	.....	7.85	8.00	8.40	9.35‡	.....	.....	.....	.....	.....	.....	.....
San Francisco	15	6.90	8.20	9.50	6.75	9.25-9.70	6.75	6.50	6.65	8.40-8.70	.....	12.05	14.00	.....	.....	.....	.....
Seattle	20	7.16-7.36	8.24-8.84	9.20-9.40	7.20-7.45	.....	7.04-7.19	6.63-6.83	6.88-7.08	9.37-9.42	.....	11.70	13.70	.....	.....	.....	.....
St. Louis	20	6.10-6.11	6.94-6.95	8.20	6.14	8.27-8.39	6.35-6.40	6.35	6.13	6.96-7.21	.....	10.65	12.65	.....	.....	.....	.....
St. Paul	15	6.47	7.31-7.61	8.56	6.50	.....	6.61-6.66	6.61	7.57	7.32-7.57	.....	11.31	.....	.....	.....	.....	.....

Apr. 29 1952
 857.97
 52.30
 55.38
 48.88
 52.50
 57.09
 52.00
 52.50
 186.25
 Chicago
 852.72
 \$43.00*
 41.50*
 41.50*
 41.15*
 46.50*
 52.75
 52.00*
 46.75
 fee.
 oted.
 \$42.00
 \$14.75
 17.75
 24.50
 24.625
 \$1.21 1/2
 19.50
 17.80
 18.00
 59.55
 24.50
 44.00
 per 100 lb.
 As called
 Cold-Drawn
 Annealed
 13.15
 13.11
 13.06
 13.07
 12.65
 13.07
 12.79
 12.62
 12.97
 13.04
 12.79
 12.65
 14.00
 12.62
 12.97
 13.04
 12.79
 12.65
 14.00
 13.79
 12.95
 AGE



Basic Installation

Hydride Tank

Quench Tank

Rinse Area

Brightening Tank

OPTIONAL

Designed for simplicity of operation

DU PONT SODIUM HYDRIDE DESCALING PROCESS

The Du Pont Sodium Hydride Descaling Process uses simple, compact, low-cost equipment, and is so easy to operate that any pickler can be trained to run it effectively—within hours. Yet this remarkably efficient process is the fastest, most thorough descaling process in operation today! Just one treatment—including 15 seconds to 20 minutes in the hydride bath—is all it takes to completely clean a large volume and variety of work. And there is positively *no* danger of base metal attack—even if work is left unattended in the hydride bath *after* the descaling action is completed.

INVESTIGATE THIS MODERN METHOD OF DESCALING—You will probably find that you can improve your present descaling operations in many significant ways—and cut costs besides! Not only can you save the base metal that is pitted or etched away by other pickling methods, but your over-all cleaning procedure may be simplified. For example, sodium hydride descaling eliminates the need for any scale softening or breaking operations. By doing away with this step alone, there is a

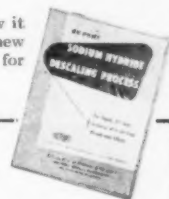
sizable saving in time, manpower and valuable floor space.

The flexibility of the sodium hydride process makes it adaptable to varied shop or production-line arrangements. Equipment can be manual, conveyORIZED or continuous—designed to meet your requirements.

GET THE FACTS FROM DU PONT—the pioneer of efficient descaling with sodium hydride. Let us show you how you can use the Du Pont process *profitably*. Just get in touch with our nearest district office or send in the coupon below.

DISTRICT AND SALES OFFICES: Baltimore • Boston • Charlotte • Chicago
 Cincinnati • Cleveland • Detroit • Kansas City* • Los Angeles • New York
 Philadelphia • Pittsburgh • San Francisco. *Baroda & Page, Inc.

More detailed information about the process—how it works, what it can do for you—can be found in our new book. Call our nearest office or use the coupon below for your copy.



DU PONT

Sodium hydride process for positive descaling



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
 Electrochemicals Department
 Wilmington 98, Delaware

Please send me more information about the Du Pont Sodium Hydride Descaling Process: advantages, applications, equipment used. I am interested in descaling_____

Name _____ Position _____

Firm _____

Address _____

City _____ State _____

IRON AGE		<i>Italics identify producers listed in key at end of table</i> Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.												
STEEL PRICES (Effective Apr. 28, 1953)		INGOTS		BILLETS, BLOOMS, SLABS			PIPE SKELP	PIL- ING	SHAPES STRUCTURALS		STRIP			
		Carbon Forging Net Ton	Alloy Net Ton	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton		Sheet Steel	Carbon	Hi Str. Low Alloy	Hot- rolled	Cold- rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy
EAST	Bethlehem, Pa.					\$76.00 B3			3.90 B3	5.80 B3				
	Buffalo, N. Y.			\$59.00 B3	\$70.50 B3, R3	\$76.00 B3, R3		4.675 B3	3.90 B3	5.80 B3	3.725 B3, R3	5.10 B3	5.70 B3	7.90 B3
	Claymont, Del.													
	Coatesville, Pa.													
	Conschocken, Pa.				\$77.50 A2	\$83.00 A2					4.125 A2		5.90 A2	
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johnstown, Pa.			\$59.00 B3	\$70.50 B3	\$76.00 B3			3.90 B3	5.80 B3	3.725 B3			
	Newark, N. J.													
	New Haven, Conn.											5.60 A5 5.85 D1		
	Phoenixville, Pa.								4.95 P2					
	Putnam, Conn.													
	Sparrows Pt., Md.										3.725 B3	5.10 B3	5.70 B3	7.90 B3
	Worcester, Mass.													
	Trenton, N. J.											6.45 R4		
MIDDLE WEST	Alton, Ill.										4.20 L1			
	Ashland, Ky.										3.725 A7			
	Canton-Massillon, Ohio				\$70.50 R3	\$76.00 R3 \$78.60 T5								
	Chicago, Sterling, Ill.			\$59.00 U1	\$70.50 U1, R3, W8	\$76.00 U1, R3, W8		4.675 U1	3.85 U1, W8	5.80 U1	3.725 A1, W8 4.725 N4	5.35 A1		
	Cleveland, Ohio				\$70.50 R3							5.10 A5, J3		7.45 J3
	Detroit, Mich.	\$56.00 R5	\$57.00 R5		\$73.50 R5	\$79.00 R5					4.025 G3 4.40 M2	5.30 G3 5.45 M2 5.60 D1 6.05 D2	6.30 G3	8.15 G3
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana			\$59.00 U1	\$70.50 U1	\$76.00 U1, Y1		4.675 J3	3.85 J3, U1	5.80 J3, U1 6.30 Y1	3.725 J3, U1, Y1	5.35 J3	5.65 J3, U1 6.15 Y1	
	Granite City, Ill.													
	Kokomo, Ind.													
	Middletown, Ohio											5.10 A7		
	Niles, Ohio Sharon, Pa.										4.225 S1	5.70 T4 5.80 S1	5.65 S1	7.90 S1
	Pittsburgh, Pa. Midland, Pa.	\$54.00 U1	\$57.00 U1, C11	\$59.00 U1	\$70.50 U1	\$76.00 U1, C11	3.55 U1 3.65 J3	4.675 U1	3.85 U1, J3	5.80 U1, J3	3.725 A7 3.975 A3 4.225 S7, S9	5.10 J3, A7 5.45 A3 5.80 B4, S7	7.45 J3	
	Portsmouth, Ohio													
	Weirton, Wheeling, Follansbee, W. Va.								4.10 W3		3.825 W3	5.10 W3	6.10 W3	7.95 W3
Youngstown, Ohio					\$76.00 Y1, C10	3.55 U1, R3			6.30 Y1	3.725 U1, Y1, R3	5.10 R3, Y1 5.70 C3 5.80 B4	5.65 R3, U1 6.15 Y1	7.90 R3 7.90 Y1	
WEST	Fontana, Cal.	\$81.00 K1	\$83.00 K1	\$78.00 K1	\$89.50 K1	\$95.00 K1			4.50 K1	6.45 K1	5.175 K1	7.00 K1	6.75 K1	
	Geneva, Utah				\$70.50 C7				3.85 C7	5.80 C7				
	Kansas City, Mo.								4.45 S2		4.325 S2			
	Los Angeles, Torrance, Cal.				\$89.50 B2	\$96.00 B2			4.45 C7, B2	6.35 B2	4.475 C7, B2	7.15 C1	6.40 B2	
	Minnequa, Colo.								4.30 C6		4.775 C6			
	San Francisco, Niles, Pittsburg, Cal.				\$89.50 B2				4.40 B2 4.56 P9	6.30 B2	4.475 C7, B2		6.40 B2	
	Seattle, Wash.				\$89.50 B2, S11	\$96.00, S11			4.50 B2	6.40 B2	4.725 B2		6.65 B2	
	Atlanta, Ga.										4.275 A8			
SOUTH	Fairfield, Ala. Alabama City, Ala.			\$59.00 T2	\$70.50 T2				3.85 T2, R3	5.80 T2	3.725 T2, R3		5.65 T2	
	Houston, Texas		\$65.00 S2		\$78.50 S2	\$84.00 S2			4.25 S2		4.125 S2			

Italics identify producers listed in key at end of table. Base prices, t.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

IRON AGE

STEEL PRICES

(Effective Apr. 28, 1953)

SHEETS										WIRE ROD	TINPLATE†	BLACK PLATE	
Identified Prod. C.R. Low Alloy	Cold- rolled	Galvanized 10 ga.	Enameling 12 ga.	Long Terne 10 ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot- rolled 19 ga.		Cokes* 1 25-lb. base box	Electro* 0.25-lb. base box	Holloware Enameling 29 ga.	
					5.675 B3	6.925 B3							Bethlehem, Pa.
7.90 B1	5.575 B3												Buffalo, N. Y.
													Claymont, Del.
					5.925 A2								Coatesville, Pa.
5.5 A2													Conschocken, Pa.
													Harrisburg, Pa.
													Hartford, Conn.
									4.325 B3				Johnstown, Pa.
													Newark, N. J.
													New Haven, Conn.
													Phoenixville, Pa.
													Putnam, Conn.
7.90 B1	5.575 B3	5.075 B3			5.675 B3	6.925 B3	7.775 B3		4.425 B3	\$8.80 B3	\$7.50 B3		Sparrows Pt., Md.
									4.625 A5				Worcester, Mass.
									4.425 R4				Trenton, N. J.
									4.70 L1				Alton, Ill.
5.5 A7		5.075 A7	4.925 A7										Ashland, Ky.
		5.075 R3											Canton-Massillon, Ohio
5.5 W8					5.675 U1				4.325 A5, N4, R3				Chicago, Ill.
									4.425 N4				Sterling, Ill.
7.45 J3	5.575 R3, J3		4.925 R3		5.675 R3, J3	6.925 R3, J3			4.325 A5				Cleveland, Ohio
8.15 G3	5.575 G3				6.225 G3	7.475 G3							Detroit, Mich.
													Duluth, Minn.
5.5 I3, Y1	5.575 I3, U1, Y1	5.075 I3, U1	4.925 U1	5.475 U1	5.675 I3, U1	6.925 I3, U1	7.425 Y1			\$8.70 U1, I3, Y1	\$7.40 U1, I3	6.10 U1, Y1	Gary, Ind. Harbor, Indiana
5.5 G2	5.275 G2	5.275 G2	5.625 G2								\$7.60 G2	6.30 G2	Granite City, Ill.
		5.475 C9											Kokomo, Ind.
	4.575 A7		4.925 A7	5.475 A7									Middletown, Ohio
7.30 S1	5.575 S1				5.675 S1						\$7.40 R3		Niles, Ohio Sharon, Pa.
5.5 U1, A7	5.575 U1, J3, A7	5.075 U1	4.925 U1		5.675 U1, J3	6.925 U1, J3	7.625 U1		4.325 A5	\$8.70 U1, J3	\$7.40 U1, J3	6.10 U1	Pittsburgh, Pa. Midland, Pa.
5.5 A3									4.525 P6				Portsmouth, Ohio
									4.525 P7				Weirton, Wheeling, Follansbee, W. Va.
7.95 W3	5.575 W3, W3	5.075 W3, W3		5.475 W3, W3	6.025 W3	7.275 W3				\$8.70 W3, W3	\$7.40 W3, W3	6.35 W3	Youngstown, Ohio
7.30 R3, 7.80 Y1	5.575 R3, Y1	5.775 R1	4.925 Y1	6.05 E2	5.675 R3, U1	6.925 R3, 7.425 Y1		5.65 E2	4.325 Y1	\$8.70 R3			
	5.675 K1				6.775 K1	7.975 K1			5.125 K1				Fontana, Cal.
5.5 C7													Geneva, Utah
													Kansas City, Mo.
5.5 C7		5.825 C7						5.575 C7	5.125 C7, B2				Los Angeles, Torrance, Cal.
									4.575 C6				Minnequa, Colo.
5.5 C7	5.525 C7	5.825 C7							4.975 C7	\$9.45 C7	\$8.15 C7		San Francisco, Niles, Pittsburgh, Cal.
													Seattle, Wash.
5.5 T2	4.575 T2	5.075 T2, R3			5.675 T2			4.925 R3	4.325 T2, R3	\$8.80 T2	\$7.50 T2		Atlanta, Ga.
									4.725 S2				Fairfield, Ala. Alabama City, Ala.
													Houston, Tex.

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

THE IRON AGE

Steel Prices

(Effective Apr. 28, 1953)

Key to Steel Producers

With Principal Offices

- 41 Acme Steel Co., Chicago
42 Alan Wood Steel Co., Conshohocken, Pa.
43 Allegheny Ludlum Steel Corp., Pittsburgh
44 American Clad Metals Co., Carnegie, Pa.
45 American Steel & Wire Div., Cleveland
46 Angell Nail & Chaplet Co., Cleveland
47 Armco Steel Corp., Middletown, O.
48 Atlantic Steel Co., Atlanta, Ga.
51 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
52 Bethlehem Pacific Coast Steel Corp., San Francisco
53 Bethlehem Steel Co., Bethlehem, Pa.
54 Blair Strip Steel Co., New Castle, Pa.
55 Bliss & Laughlin, Inc., Harvey, Ill.
56 Caltrip Steel Corp., Los Angeles
57 Carpenter Steel Co., Reading, Pa.
58 Central Iron & Steel Co., Harrisburg, Pa.
59 Claymont Products Dept., Claymont, Del.
60 Cold Metal Products Co., Youngstown
61 Colorado Fuel & Iron Corp., Denver
62 Columbia-Geneva Steel Div., San Francisco
63 Columbia Steel & Shafting Co., Pittsburgh
64 Continental Steel Corp., Kokomo, Ind.
65 Copperweld Steel Co., Glassport, Pa.
66 Crucible Steel Co. of America, New York
67 Cumberland Steel Co., Cumberland, Md.
68 Cuyahoga Steel & Wire Co., Cleveland
71 Detroit Steel Corp., Detroit
72 Detroit Tube & Steel Div., Detroit
73 Driver Harris Co., Harrison, N. J.
74 Dickson Weatherproof Nail Co., Evanston, Ill.
75 Eastern Stainless Steel Co., Baltimore
76 Empire Steel Co., Mansfield, O.
77 Firth Sterling, Inc., McKeesport, Pa.
78 Fitzsimons Steel Corp., Youngstown
79 Follansbee Steel Corp., Follansbee, W. Va.
81 Globe Iron Co., Jackson, O.
82 Granite City Steel Co., Granite City, Ill.
83 Great Lakes Steel Corp., Detroit
84 Hanna Furnace Corp., Detroit
85 Ingersoll Steel Div., Chicago
86 Inland Steel Co., Chicago
87 Interlake Iron Corp., Cleveland
88 Jackson Iron & Steel Co., Jackson, O.
89 Jessup Steel Corp., Washington, Pa.
90 Jones & Laughlin Steel Corp., Pittsburgh
91 Joslyn Mfg. & Supply Co., Chicago
92 Kaiser Steel Corp., Fontana, Cal.
93 Keystone Steel & Wire Co., Peoria
94 Koppers Co., Granite City, Ill.
95 Laclede Steel Co., St. Louis
96 La Salle Steel Co., Chicago
97 Lone Star Steel Co., Dallas
98 Lukens Steel Co., Coatesville, Pa.
99 Mahoning Valley Steel Co., Niles, O.
100 McLouth Steel Corp., Detroit
101 Meyer Tube & Mfg. Co., Sharon, Pa.
102 Mid-States Steel & Wire Co., Crawfordsville, Ind.
103 Monarch Steel Co., Inc., Hammond, Ind.
104 Mysak Iron Works, Everett, Mass.
105 National Supply Co., Pittsburgh
106 National Tube Co., Pittsburgh
107 Niles Rolling Mills Co., Niles, O.
108 Northwestern Steel & Wire Co., Sterling, Ill.
109 Oliver Iron & Steel Co., Pittsburgh
110 Page Steel & Wire Div., Monessen, Pa.
111 Phoenix Iron & Steel Co., Phoenixville, Pa.
112 Pilgrim Drawn Steel Div., Plymouth, Mich.
113 Pittsburgh Coke & Chemical Co., Pittsburgh
114 Pittsburgh Screw & Bolt Co., Pittsburgh

- P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co. (John A.), Trenton, N. J.
R5 Rotary Electric Steel Co., Detroit
S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Corp., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw & Steel Co., Fitchburg, Mass.
S5 Sloss Sheffield Steel & Iron Co., Birmingham
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Sweet's Steel Co., Williamsport, Pa.
S11 Seidelhuber Steel Rolling Mills, Seattle
T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T6 Tremont Nail Co., Wareham, Mass.
T7 Texas Steel Co., Ft. Worth
U1 United States Steel Co., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Co., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
Y1 Youngstown Sheet & Tube Co., Youngstown

MERCHANT WIRE PRODUCTS

	Standard & Coated Nails	Woven Wire Fence 9-15 1/2 ga.	Fence Posts	Single Loop Bale Ties	Twisted Barbed Wire	Galv. Barbed Wire	Merch. Wire Ann Id	Merch. Wire Galv.
F.a.b. Mill	Cal	Cal	Cal	Cal	Cal	Cal	d/lb.	d/lb.
Alabama City R31	127	135	132	144	6.075	6.322		
Aliquippa, Pa. J3	127	141	135	148	6.075	6.525		
Atlanta A6	130	140	135	149	6.325	6.675		
Bartonsville K2	127	139	140	148	6.075	6.50		
Buffalo W6	127	136	132	145	6.075	6.375		
Chicago N4	127	138	132	147	6.175	6.475		
Cleveland A6	127	138	132	147	6.175	6.475		
Crawfordsville M4	127	133	132	142	6.075	6.225		
Donora, Pa. A5	127	133	132	142	6.075	6.225		
Duluth A5	127	133	132	142	6.075	6.225		
Fairfield, Ala. T2	127	133	132	142	6.075	6.225		
Galveston D4	135	147	140	156	6.475	6.925		
Houston S2	135	147	140	156	6.475	6.925		
Johnston, Pa. B3	127	133	132	142	6.075	6.225		
Joliet, Ill. A5	127	133	132	142	6.075	6.225		
Kokomo, Ind. C9	127	133	132	142	6.075	6.225		
Los Angeles B2	127	133	132	142	6.075	6.225		
Kansas City S2	139	144	140	160	6.075	7.125		
Minneapolis C6	132	146	138	153	6.325	6.70		
Moline, Ill. R3	136	146	140	162	6.075	7.175		
Pittsburg, Cal. C7	146	156	150	167	6.075	7.45		
Monessen P6	127	138	132	147	6.075	6.45		
Portsmouth P7	132	142	136	151	6.075	6.475		
Rankin, Pa. A5	127	133	132	142	6.075	6.225		
So. Chicago R31	127	135	140	144	6.075	6.325		
S. San Fran. C6	127	135	132	147	6.075	6.475		
Sparrows Pt. B3	129	134	131	145	6.075	6.475		
Struthers, O. Y1	147	153	140	167	6.075	7.025		
Torrance, Cal. C7	147	153	140	167	6.075	7.025		
Worcester A5	133	143	136	153	6.375	6.525		
Williamsport, Pa. S10	133	143	136	153	6.375	6.525		

Cut Nails, carloads base \$7.80 per 100 lb. (less 28¢ to jobbers) at Conshohocken, Pa. (A2) Wheeling, W. Va. (W5) \$7.80.
‡ Zinc extra not included on Galv. Merch. Wire.
§ Struthers Galv. Merch. Wire based on 15¢ Zinc.

STAINLESS STEELS

Base price, cents per lb., f.a.b. mill.

Product	301	302	303	304	316	321	347	410	416	430
Ingot, re-rolling	15.50	16.50	18.00	17.50	26.75	21.75	23.50	13.50	16.25	13.75
Slabs, billets, re-rolling	19.75	21.75	23.75	22.75	34.75	28.25	30.75	17.50	21.50	17.75
Forg. discs, die blocks, rings	36.75	37.00	39.75	38.50	57.25	43.50	48.25	30.00	30.50	30.50
Billets, forging	28.25	28.50	30.75	29.75	44.75	33.75	37.75	23.00	23.50	23.50
Bars, wires, structurals	33.75	34.00	36.50	35.50	53.00	40.00	44.75	27.50	28.00	28.00
Plates	35.75	35.75	38.00	38.00	56.00-56.25	44.00	49.00	28.75	29.75	29.25
Sheets	44.25	44.50	46.50	46.50	61.50	53.00	58.00	39.00	39.50	41.50
Strip, hot-rolled	28.50	30.50	35.00	32.75	52.50	40.00	44.50	25.00	32.75	25.75
Strip, cold-rolled	36.50	39.75	43.50	41.75	63.50	52.00	56.50	32.75	39.50	33.25

STAINLESS STEEL PRODUCING POINTS—Sheets: Midland, Pa., C11; Brackenridge, Pa., A3; Butler, Pa., A7; McKeesport, Pa., U1; Washington, Pa., W2; (type 316 add 4.5¢) J2; Baltimore, Md.; Middletown, O., A7; Massillon, O., R3; Gary, Ind.; Bridgeville, Pa., U2; New Castle, Ind., I2; Ft. Wayne, Ind.; Lockport, N. Y., R4.

Strip: Midland, Pa., C11; Cleveland, Pa., A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C7; Washington, Pa., W2 (type 316 add 4.5¢); W. Leeburg, Pa., A3; Bridgeville, Pa., U2; Detroit, Mich.; Canton-Massillon, O., R3; Middletown, O., A7; Harrison, N. J., D3; Youngstown, Pa., C5; Lockport, N. Y., S4; Sharon, Pa., S7 (type 301 add 1/4¢); Butler, Pa., A7; Wallingford, Conn., W1.

Bars: Baltimore, Md.; Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C7; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Chicago, Ill.; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, Ind.; Lockport, N. Y., S4; Canton, O., T5; Ft. Wayne, Ind., J4.

Wires: Waukegan, Ind.; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, Ind.; Harrison, N. J., D3; Baltimore, Md.; Dunkirk, N. Y.; Monessen, Pa.; Syracuse, N. Y.; Bridgeville, Pa., U2.

Structurals: Baltimore, Md.; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, N. Y., C11.

Plates: Brackenridge, Pa., A3; Butler, Pa., A7; Chicago, Ill., U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., I2; Lockport, N. Y., S4; Middletown, Pa., J2; Cleveland, Massillon, R3.

Forged discs, die blocks, rings: Pittsburgh, Pa., C11; Syracuse, N. Y., C11; Ferndale, Mich., A3; Washington, Pa., J2.

Forging billets: Midland, Pa., C11; Baltimore, Md.; Washington, Pa., J2; McKeesport, Pa., F1; Massillon, Canton, O., R3; Watervliet, N. Y.; Pittsburgh, Chicago, Ill.; Syracuse, N. Y., C11.

WASHINGTON STEEL—Slightly lower on 300 series except where noted.

Miscellaneous Prices

(Effective Apr. 28, 1953)

PIPE AND TUBING

Base discounts f.o.b. mills. Base price about \$200 per net ton.

	BUTTWELD														SEAMLESS					
	1/2 In.		3/4 In.		1 In.		1 1/4 In.		1 1/2 In.		2 In.		2 1/2-3 In.		2 In.		2 1/2-3 In.		3 1/2-4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
STANDARD T. & C.																				
Sparrows Pt. B3	30.5	8.25	33.5	12.25	35.5	15.75	36.5	16.25	37.0	17.25	37.5	17.75	38.0	18.25						
Youngstown R3	32.5	10.25	35.5	14.25	38.0	17.75	38.5	18.25	39.0	19.25	39.5	19.75	40.0	20.25						
Fontana K1	19.5	2.75	22.5	1.25	25.0	4.75	25.5	5.25	26.0	6.25	26.5	6.75	27.0	7.25						
Pittsburgh J3	32.5	10.25	35.5	13.25	38.0	15.75	38.5	16.75	39.0	17.25	39.5	17.75	40.0	18.75	24.0	2.25	27.0	5.75	29.0	7.75
Alton, Ill. L1	31.5	9.25	34.5	13.25	37.0	16.75	37.5	17.25	38.0	18.25	38.5	18.75	39.0	19.25						
Sharon M3	32.5	9.25	35.5	13.25	38.0	16.25	38.5	16.75	39.0	17.25	39.5	17.75	40.0	18.25						
Pittsburgh N1	32.5	10.25	35.5	14.25	38.0	17.75	38.5	18.25	39.0	19.25	39.5	19.75	40.0	20.25	24.0		27.0		29.0	
Wheeling W5	32.5	10.25	35.5	14.25	38.0	17.75	38.5	18.25	39.0	19.25	39.5	19.75	40.0	20.25						
Wheeland W4	32.5	10.25	35.5	13.25	38.0	15.75	38.5	16.75	39.0	17.25	39.5	17.75	40.0	18.75						
Youngstown Y1	32.5	10.25	35.5	14.25	38.0	17.75	38.5	18.25	39.0	19.25	39.5	19.75	40.0	20.25	24.0	3.75	27.0	6.75	29.0	8.75
Indiana Harbor Y1	31.5	9.25	34.5	13.25	37.0	16.75	37.5	17.25	38.0	18.25	38.5	18.75	39.0	19.25						
Lorain N2	32.5	15.25	35.5	14.25	38.0	17.75	38.5	18.25	39.0	19.25	39.5	19.75	40.0	20.25	24.0	3.75	27.0	6.75	29.0	8.75
EXTRA STRONG																				
PLAIN ENDS																				
Sparrows Pt. B3	30.25	9.5	34.25	13.5	36.25	17.0	36.75	17.5	37.25	18.5	37.75	19.0	38.25	19.5						
Youngstown R3	32.25	11.5	36.25	15.5	38.25	19.0	38.75	19.5	39.25	20.5	39.75	21.0	40.25	21.5						
Fontana K1	19.25		23.25		25.25		25.75		26.25		26.75		27.25							
Pittsburgh J3	32.25	10.0	36.25	14.0	38.25	16.0	38.75	17.0	39.25	17.5	39.75	18.0	40.25	19.0	23.75	2.0	27.75	6.5	31.25	10.0
Alton, Ill. L1	29.25	8.5	33.25	12.5	35.25	16.0	35.75	16.5	36.25	17.5	36.75	18.0	37.25	18.5						
Sharon M3	32.25	10.5	36.25	14.5	38.25	17.5	38.75	18.0	39.25	18.5	39.75	19.0	40.25	19.5						
Pittsburgh N1	32.25	11.5	36.25	15.5	38.25	19.0	38.75	19.5	39.25	20.5	39.75	21.0	40.25	21.5	23.75		27.75		31.25	
Wheeling W5	32.25	11.5	36.25	15.5	38.25	19.0	38.75	19.5	39.25	20.5	39.75	21.0	40.25	21.5						
Wheeland W4	32.25	10.0	36.25	14.0	38.25	16.0	38.75	17.0	39.25	17.5	39.75	18.0	40.25	19.0						
Youngstown Y1	32.25	11.5	36.25	15.5	37.75	19.0	38.75	19.5	39.25	20.5	39.75	21.0	40.25	22.5	23.75	4.5	27.75	8.5	31.25	12.0
Indiana Harbor Y1	31.25	10.5	35.25	14.5	37.25	17.5	37.75	18.5	38.25	19.5	38.75	20.0	39.25	20.5						
Lorain N2	32.25	11.5	36.25	15.5	38.25	19.0	38.75	19.5	39.25	20.5	39.75	21.0	40.25	21.5	23.75	4.5	27.75	8.5	31.25	12.0

Galvanized discounts based on zinc, at 17¢ per lb. East St. Louis. For each 1¢ change in zinc, discounts vary as follows: 1/2 in., 3/4 in., and 1 in., 1 pt.; 1 1/4 in., 1 1/2 in., 2 in., 3/4 pt.; 2 1/2 in., 3 in., 3 1/2 in., 1 pt. Calculate discounts on even cents per lb. of zinc, i.e., if zinc is 14.51¢ to 17.50¢ per lb., use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. Threads only butt weld and seamless, 1 pt. higher discount. Plain ends, butt weld and seamless, 3 in. and under, 3/4 pts. higher discount. Butt weld jobbers' discount, 5 pts. St. Louis zinc price now 11.0¢.

COKE

Furnace, beehive (f.o.b. oven)	Net-Ton
Connellsville, Pa.	\$14.50 to \$15.00
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.50 to \$18.00
Foundry, oven coke	
Buffalo, del'd	\$28.08
Chicago, f.o.b.	24.50
Detroit, f.o.b.	25.50
New England, del'd	26.06
Seaboard, N. J., f.o.b.	24.00
Philadelphia, f.o.b.	23.95
Swedeland, Pa., f.o.b.	23.85
Painesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	25.00
Cleveland, del'd	27.43
Cincinnati, del'd	26.66
St. Paul, f.o.b.	22.50
St. Louis, f.o.b.	26.00
Birmingham, del'd	23.21
Lone Star, Tex., f.o.b.	18.50

ELECTRICAL SHEETS

22 Ga. H-R cut length	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
F.o.b. Mill Cents Per Lb.							
Beach Bottom W5	7.85	9.10	9.90	10.45	11.00	11.70	
Brackenridge A3	7.35	7.85	9.10	9.90	10.45	11.00	11.70
Granite City C2	8.55	9.80					
Ind. Harbor J3	7.35	7.85	9.10				
Mansfield E2	7.35	7.85	9.10	9.90			
Niles, O. N3	7.35	7.85					
Vandergrift U1	7.35	7.85	9.10	9.90	10.45	11.00	11.70
Warren, O. R3	7.35	7.85	9.10				
Zanesville A7	7.35	7.85	9.10	9.90	10.45	11.00	11.70

CAST IRON WATER PIPE

Per Net Ton
6 to 24-in., del'd Chicago \$110.30 to \$113.30
6 to 24-in., del'd N.Y. 113.60 to 114.60
6 to 24 in., Birmingham 96.50 to 101.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipments; rail and water shipments less \$128.00 to \$130.00
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.

BOILER TUBES

\$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size	Seamless	Elec. Weld
	OD-In.	B.W. Ga.	H.R. C.D. H.R. C.D.
Babcock & Wilcox	2	13	23.93 28.14 23.19 27.38
	2 1/2	12	32.17 37.83 31.19 36.00
	3	12	35.78 42.11 34.69 40.00
	3 1/2	11	44.72 52.85 43.36 51.00
	4	10	55.52 65.31 63.83 73.38
National Tube	2	13	22.81 27.94 22.23
	2 1/2	12	31.28 38.31 30.51
	3	12	35.67 43.93 34.98
	3 1/2	11	42.56 52.12
	4	10	54.02 66.10
Pittsburgh Steel	2	13	22.81 27.94 22.23
	2 1/2	12	32.16 38.19
	3	12	36.87 44.93
	3 1/2	11	43.76 53.32
	4	10	57.60

C-R SPRING STEEL

Cents Per Lb. F.o.b. Mill	CARBON CONTENT				
	0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.30
Bridgeport, Conn. S7	5.80	7.65	8.25	10.20	12.50
Carnegie, Pa. S9		7.65	8.25	10.20	12.50
Cleveland A5	5.10	7.30	8.25	10.20	12.50
Detroit D1	6.45	7.50	8.10		
New Castle, Pa. B4	5.80	7.65	8.25	10.20	
New Haven, Conn. D1	6.70	7.60	8.20		
Sharon, Pa. S1	5.80	7.65	8.25	10.20	12.50
Trenton, N. J. R4		7.65	8.25	10.20	12.50
Warren, Ohio T4	6.20	7.65	8.25	10.20	12.50
Weirton, W. Va. W3	5.80	7.65	8.25	10.20	12.50
Worcester, Mass. A5	5.40	7.60	8.55	10.50	12.50
Youngstown C5		7.65	8.25	10.20	12.50

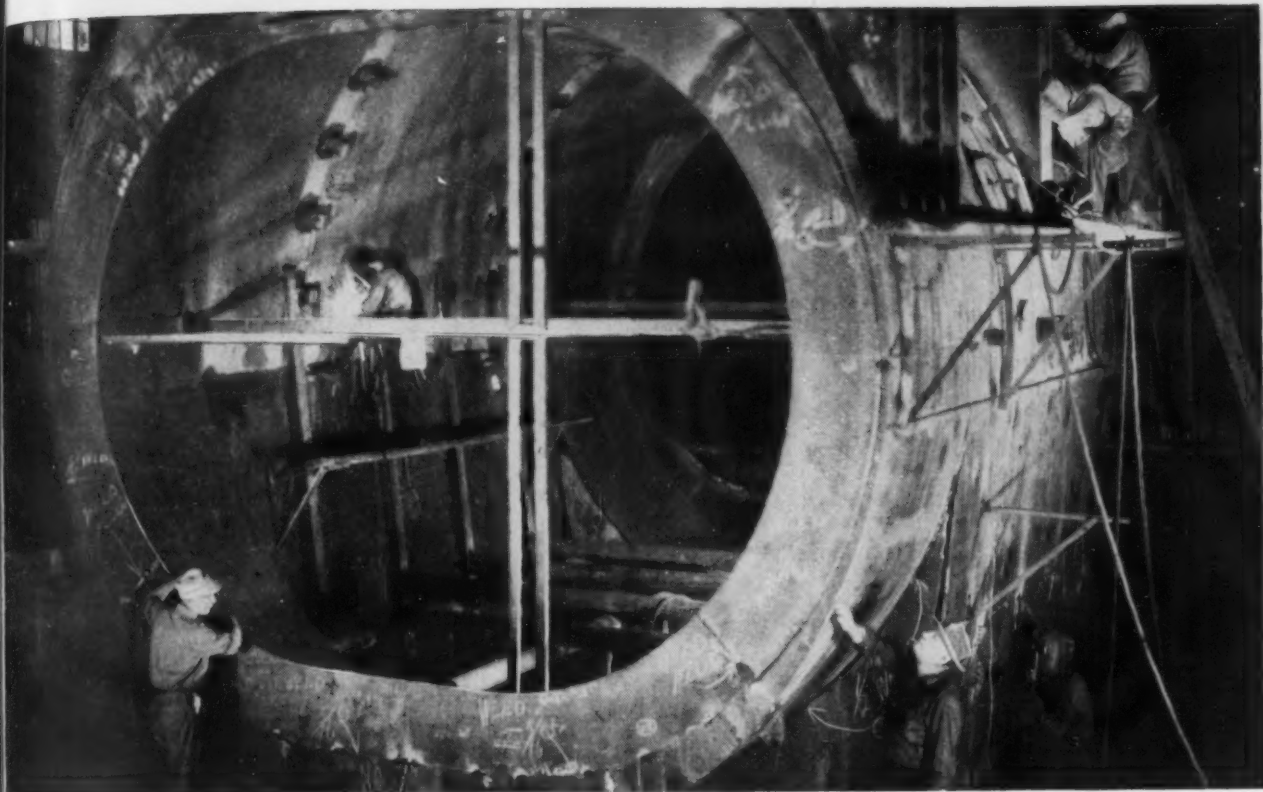
* Sold on Pittsburgh base.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Foundry	Malleable	Bessemer	Low Phos.	Bl. Furnace Silvery
Bethlehem R3	56.50	57.00	57.50	58.00		
Birmingham B3	50.88	51.38				
Birmingham W9	50.88	51.38				
Birmingham S5	50.88	51.38				
Buffalo R3	54.50	55.00	55.50			
Buffalo H1	54.50	55.00	55.50			66.75
Buffalo W6	54.50	55.00	55.50			
Chicago I4	54.50	55.00	55.00	55.50		
Cleveland A5	54.50	55.00	55.00	55.50	59.50	
Cleveland R3	54.50	55.00	55.00			
Dangerfield, Tex. L3	50.50	51.00	51.00			
Duluth I4	54.50	55.00	55.00	55.50		
Erie I4	54.50	55.00	55.00	55.50		
Everett, Mass. M6		59.50	60.00			
Fontana K1	60.50	61.00				
Geneva, Utah C7	54.50	55.00				
Granite City, Ill. K3	56.40	56.90	57.40			
Hubbard, Ohio Y1	54.50	55.00	55.00			
Jackson, Ohio J1/G1						65.50
Minnequa C6	56.50	57.50	57.50			
Monessen P6	56.50					
Neville Island P4	54.50	55.00	55.00	55.50		
Pittsburgh U1	54.50			55.50		
Sharpville S5	54.50	55.00	55.00	55.50		
Steelton B3	56.50	57.00	57.50	58.00	62.50	
Swedeland A2	58.50	59.00	59.50	60.00		
Toledo I4	54.50	55.00	55.00	55.50		
Troy, N. Y. R3	56.50	57.00	57.50	58.00	62.50	
Youngstown Y1	54.50	55.00	55.00	55.50		
N. Tonawanda, N. Y. T1		55.00	55.50			

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct). 50¢ per ton for each 0.50 pct manganese over 1 pct, \$2 per ton for 0.5 to 0.75 pct nickel, \$1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus, content 0.70 pct and over. Silvery Iron: Add \$1.50 per ton net for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. \$1 per ton for 0.75 pct or more phosphorus, manganese as above. Bessemer ferro-silicon prices are \$1 over comparable silvery iron.

IRON AGE

This formula helps an entire industry!

More and more firms in the chemical industry are coming to rely on this formula:

Barium Steel Corporation—best source for structural and steel plate, fabricated forms and finished products of steel, aluminum, magnesium, Fibreglas, plastics.

The reason for this conviction is that the group of strategically located companies comprising Barium Steel Corporation serves the chemical industry as a *unified* source for its structural and equipment requirements, controlling quality from blast furnace to end product, working as

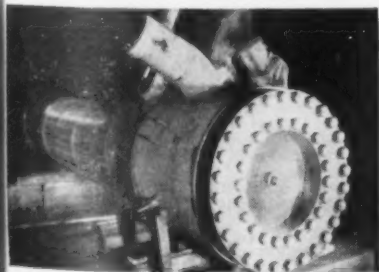
a self-contained supplier of urgently needed material.

For example, in the scene above, workers at Barium's Central Iron and Steel Company are building a giant condenser shell from Central plate, which is also fabricated into tanks, heat exchangers and piping for the process industries. Other Barium subsidiaries (see photos below) supply the chemical field with a number of important components.

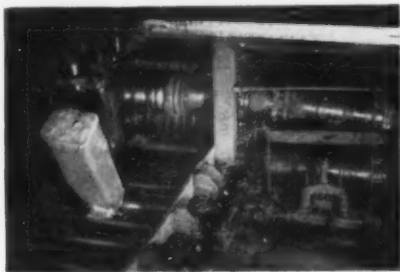
Whatever your industry, Barium can provide you with the same kind of service. For details, write Barium Steel Corporation, 25 Broad Street, New York City. No obligation.



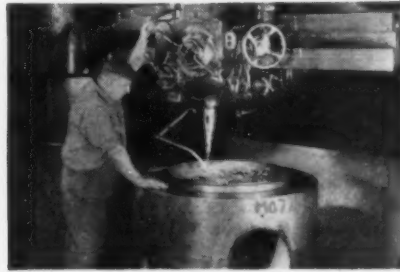
BAYONE BOLT CORP. • CENTRAL IRON AND STEEL
 COMPANY • CHESTER BLAST FURNACE • CLYDE IRON
 WORKS, INC. • CUYAHOGA SPRING COMPANY • EAST
 COAST AERONAUTICS, INC. • ERIE BOLT AND NUT
 COMPANY • GEOMETRIC STAMPING CO. • GLOBE FORGE,
 INCORPORATED • INDUSTRIAL FORGE & STEEL, INC.
 • JACOBS AIRCRAFT ENGINE CO. • KERMATH
 MANUFACTURING CO. • KERMATH LIMITED (CANADA)
 • PHOENIX BRIDGE CO. • PHOENIX IRON & STEEL CO.
 WILEY MANUFACTURING CO.



THE HEAD of this Lummus Co. heat exchanger unit is securely fastened by bolts and studs specially made by Barium's Erie Bolt and Nut Co. Specialty studs for the industry are also produced by Barium's Bayonne Bolt Corp.



THIS INGOT in the blooming mill at Phoenix Iron and Steel Co. will ultimately become structural steel, which is widely used in the chemical industry for the construction of new processing equipment.



HEAT EXCHANGER manufacturers like Griscom-Russell Company take heavy forgings of Barium's Industrial Forge & Steel, Inc., and fabricate them into parts that resist temperature, high pressure, and the corrosive action of chemicals.

Miscellaneous Prices

(Effective Apr. 28, 1953)

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb.	No. 1 Std. Rail	Light Rail	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer U1	3.775	4.25	4.925	6.65			
Chicago R3							
Cleveland R3							
Ensley T2	3.775	4.25					
Fairfield T2		4.25		6.65	4.775		
Gary U1	3.775	4.25			4.775		
Ind. Harbor J3	3.775		4.925	6.65	4.775		
Johnstown B3		4.25					
Joliet U1		4.25	4.925				
Kansas City S2							
Lackawanna B3	3.775	4.25	4.925		4.775		
Lebanon B3				6.65			
Minnequa C6	4.075	5.05	5.075	6.80		4.925	10.00
Pittsburgh R3							
Pittsburgh O1							
Pittsburgh P5							
Pittsburgh J3				6.65			
Pitt's, Cal. C7					4.925		
Seattle B2				7.15	4.925		
Steelton B3	3.775		4.925		4.775		
Struthers Y1				6.65			
Terrance C7					4.925		
Youngstown R3				6.65			

TOOL STEEL

F.o.b. mill

Add 4.7 pct to base and extras.

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	\$1.505
18	4	1	—	5	\$2.13
18	4	2	—	—	\$1.65
1.5	4	1.5	8	—	\$1.00
6	4	2	6	—	\$6.50
High-carbon chromium					\$3.50
Oil hardened manganese					35¢
Special carbon					\$3.50
Extra carbon					27¢
Regular carbon					23¢
Warehouse prices on and east of Mississippi are 3.5¢ per lb. higher. West of Mississippi, 5.5¢ higher.					

CLAD STEEL

Add 4.7 pct to base and extras.

Stainless-carbon	Plate	Sheet
No. 304, 20 pct.		
Coatesville, Pa. L1	\$29.5	
Washington, Pa. J2	\$29.5	
Claymont, Del. C4	\$29.50	
Conshohocken, Pa. A2		\$27.50
New Castle, Ind. J2	\$29.77	\$26.74
Nickel-carbon		
10 pct Coatesville, Pa. L1	32.5	
Inconel-carbon		
10 pct Coatesville, Pa. L1	40.5	
Monel-carbon		
10 pct Coatesville, Pa. L1	33.5	
No. 302 Stainless copper stainless, Carnegie, Pa. A4		77.00
Aluminized steel sheets, hot dip, Butler, Pa., A7		7.75
* Includes annealing and pickling, or sandblasting.		

ELECTRODES

Cents per lb, f.o.b., plant threaded electrodes with nipples, unboxed

Diam. in. in.	Length in. in.	Cents Per lb.
GRAPHITE		
24	84	18.70
17, 18, 20	60, 72	18.70
8 to 16	48, 60, 72	18.70
7	48, 60	20.50
6	48, 60	21.95
4, 5	40	22.53
3	40	23.68
2 1/2	24, 30	24.26
2	24, 30	26.57
CARBON		
40	100, 110	8.45
35	65, 110	8.45
30	65, 84, 110	8.45
24	72 to 104	8.45
20	84, 90	8.45
17	60, 72	8.45
14	60, 72	9.02
10, 12	60	9.30
8	60	9.58

FLUORSPAR

Washed gravel, f.o.b. Rosiclare, Ill.
Price, net ton; Effective CaF₂ content:
70% or more \$43.00
60% or less 40.00

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base, discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Nuts, Hot Pressed, Cold Punched—Sq.

	Pot Off List				
	Less	Keg	K.	Less	K.
		Reg.			Hvy.
1/2 in. & smaller	10	24	10	24	
9/16 in. & 5/8 in.	8	21	1	16	
3/4 in. to 1 1/2 in.					
Inclusive	4	18	+4	12	
1 1/2 in. & larger	2	17	+4	12	

Nuts, Hot Pressed—Hexagon

1/2 in. & smaller	22	33	18	30
9/16 in. & 5/8 in.	12	25	1	16
3/4 in. to 1 1/2 in.				
Inclusive	8	21	+3	13
1 1/2 in. & larger	4	18	+3	13

Nuts, Cold Punched—Hexagon

1/2 in. & smaller	22	33	18	30
9/16 in. & 5/8 in.	19	31	13	26
3/4 in. to 1 1/2 in.				
Inclusive	15	27	8	21
1 1/2 in. & larger	2	17	+4	12

Nuts, Semi-Finished—Hexagon

	Reg.	Hvy.
1/2 in. & smaller	33	43
9/16 in. & 5/8 in.	27	38
3/4 in. to 1 1/2 in.		
Inclusive	21	33
1 1/2 in. & larger	5	19
	Light	net
7/16 in. & smaller	33	43
1/2 in. thru 3/4 in.	26	37
3/4 in. to 1 1/2 in.		
Inclusive	18	30

Stove Bolts

Pot Off List
Packaged, steel, plain finished 44 1/2—10
Packaged, plain finish 25 1/2—10
Bulk, plain finish 59*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter: 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Inc. Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets

	Base per 100 lb
1/2 in. & larger	\$8.60
7/16 in. and smaller	Pot Off List 20

Cap and Set Screws

(In bulk)	Pct Off List
Hexagon head cap screws, coarse or fine thread, 1/4 in. thru 3/4 in. x 6 in., SAE 1020, bright	40
3/4 in. thru 1 in. up to & including 6 in.	26
1/4 in. thru 3/4 in. x 6 in. & shorter	
high C double heat treat	43
3/4 in. thru 1 in. up to & including 6 in.	33
Milled studs	17
Flat head cap screws, listed sizes	12
Fillister head cap, listed sizes	7
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	37

Machine and Carriage Bolts

	Pot Off List	Less Case	C.
1/2 in. & smaller x 6 in. & shorter	11	25	
9/16 in. & 5/8 in. x 6 in. & shorter	15	27	
3/4 in. & larger x 6 in. & shorter	14	26	
All diam. longer than 6 in.	8	22	
Lag, all diam. x 6 in. & shorter	19	31	
Lag, all diam. longer than 6 in.	16	28	
Plow bolts	30		

REFRACTORIES

Fire Clay Brick

Carloads, per 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.25) \$39.30
No. 1 Ohio 32.40
Sec. quality, Pa., Md., Ky., Mo., Ill. 32.40
No. 2 Ohio 33.15
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.60) 14.40

Silica Brick

Mt. Union, Pa., Ensley, Ala. \$39.30
Childs, Pa. 103.95
Hays, Pa. 106.10
Chicago District 122.40
Western Utah 116.55
California 122.85
Super Duty, Hays, Pa., Athens, Tex., Chicago 116.65
Silica cement, net ton, bulk, Eastern (except Hays, Pa.) 17.30
Silica cement, net ton, bulk, Hays, Pa. 19.60
Silica cement, net ton, bulk, Ensley, Ala. 19.45
Silica cement, net ton, bulk, Chicago District 19.45
Silica cement, net ton, bulk, Utah and Calif. 25.95

Chrome Brick

Per net ton
Standard chemically bonded Balt., Chester \$36.00
Burned, Balt., Chester 80.00

Magnesite Brick

Standard Baltimore \$109.00
Chemically bonded, Baltimore 97.50

Grain Magnesite

St. %-in. grains
Domestic, f.o.b. Baltimore in bulk fines removed \$64.40
Domestic, f.o.b. Chewelah, Wash., in bulk 38.00
in sacks 43.70

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢ \$13.70

LAKE SUPERIOR ORES

51.50% Fe; natural content, delivered lower Lake ports. Prices through June 30, 1953, delivery.

	Gross Ton
Openhearth lump	\$10.95
Old range, bessemer	10.10
Old range, nonbessemer	9.95
Mesabi, bessemer	9.85
Mesabi, nonbessemer	9.70
High phosphorus	9.70
Prices based on upper Lake rail freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on Dec. 31, 1952. Increases or decreases after such date are for buyer's account.	

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.
Swedish sponge iron a.i.f. 10.9¢
New York, ocean bags 12.0¢
Canadian sponge iron, del'd. in East 12.0¢
Domestic sponge iron, 98+ % Fe, carloads lots 15.5¢ to 17.0¢
Electrolytic iron, annealed, 99.5+ % Fe 44.0¢
Electrolytic iron, unannealed, minus 325 mesh, 99+ % Fe 60.0¢
Hydrogen reduced iron, minus 300 mesh, 98+ % Fe 53.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+ % Fe 83.0¢ to 81.45¢
Aluminum 30.00¢ to 33.25¢
Brass, 10 ton lots 30.00¢ to 33.25¢
Copper, electrolytic 10.75¢ plus metal value
Copper reduced 10.00¢ plus metal value
Cadmium, 100-199 lb. 95¢ plus metal value
Chromium, electrolytic 99% 32.50¢
min., and quantity, del'd 32.50¢
Lead 7.5¢ to 12.0¢ plus metal value
Manganese 87.75¢
Molybdenum, 99% 88.00¢
Nickel, unannealed 96.00¢
Nickel, annealed 92.00¢
Nickel, spherical, unannealed 33.5¢
Silicon 33.5¢
Solder powder 7.0¢ to 9.0¢ plus met. value
Stainless steel, 302 31.10¢
Stainless steel, 316 31.10¢
Tin 14.04¢ plus metal value
Tungsten, 99% (65 mesh) 23.0¢ to 30.5¢
Zinc, 10 ton lots 23.0¢ to 30.5¢

Ferroalloy Prices

(Effective Apr. 28, 1953)

Ferrochrome

Contract prices, cents per pound, contained CR, lump size, bulk in carloads delivered. (65-72% Cr, 2% max. Si.)			
1000	34.50	0.20% C	33.50
99.30	34.00	0.50% C	33.25
92.40	34.00	1.00% C	33.00
92.40	33.75		32.75
83.15			24.75
14.40			25.60

M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.	
High carbon type: 60-65% Cr, 4-6% Mn, 4-6% C.	25.85
Carloads	28.00
Ton lots	29.50

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.	
---	--

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.	
110% max. C	1.18
100% max. C	1.14
to 11% C	1.11

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)	
Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 25.75¢ per lb of contained Cr plus 12.40¢ per lb of contained Si.	
Bulk 1-in. x down, 25.90¢ per lb contained Cr plus 12.60¢ per lb contained Si.	

Calcium-Silicon

Contract price per lb of alloy, dump delivered.	
60-33% Ca, 60-65% Si, 3.00% max. Fe	19.00
Carloads	22.10
Ton lots	23.60

Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy dump, delivered.	
6-20% Ca, 14-18% Mn, 53-59% Si.	20.00
Carloads	22.30
Ton lots	23.30

CWSZ

Contract price, cents per lb of alloy, delivered.	
Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.	
Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.	
Ton lots	20.75
Less ton lots	22.00

WMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 1% Fe 1/2 in. x 12 mesh.	
Ton lots	17.50
Less ton lots	19.50

Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 1-11% Mn.	
Ton lots	16.50
Less ton lots	17.75

Graphidex No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Carload packed	18.00
Ton lots to carload packed	19.00
Less ton lots	20.50

Ferromanganese

78-82% Mn, maximum contract base price, gross ton, lump size.	
Fab. Niagara Falls, Alloy, W. Va., Ashabula, O.	\$235
Fab. Johnstown, Pa.	227
Fab. Sheridan, Pa.	225
Fab. Etna, Clairton, Pa.	228
Fab. Philo, Ohio	225
Add \$2.50 for each 1% above 82% Mn, subtract \$2.50 for each 1% below 78% Mn.	
Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	
Carload, bulk	12.45
Ton lots, packed	14.05

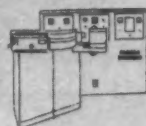
You Get Speed and Accuracy With ARL Production Control Quantometers

If you maintain quality control of materials by chemical analysis,

Here Are Facts That Will Amaze You!



A Chemist averages 26 element determinations per day.

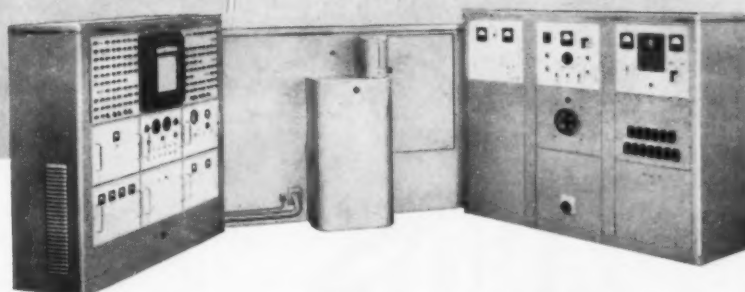


Spectrographic equipment raises his capacity to 150 element determinations per day.



ARL Production Control Quantometers* allow him to average 600 determinations per day . . . 23 times his output by chemical means.

This money-saving speed is important to you, but even more important—Is the Accuracy of the PCQ!



The PCQ offers accuracy equivalent to that obtained by routine chemical analysis.

Other advantages of the PCQ are: simplicity of operation to reduce human error to a minimum; analysis of 35 elements of your choice—up to 20 simultaneously; automatic inked record in duplicate of the concentration of elements present in alloys and inorganic compounds, in less than two minutes.

Mail the coupon today. An ARL field engineer will be glad to show you how to profitably apply the PCQ to your control problem.

*Trade Mark



Applied Research Laboratories

SPECTROCHEMICAL EQUIPMENT

3717 PARK PLACE GLENDALE 8, CALIFORNIA
NEW YORK • PITTSBURGH • DETROIT • CHICAGO • DALLAS • LOS ANGELES • LAUSANNE, Switzerland

Gentlemen: Please send me complete information on the ARL Production Control Quantometer.

Name _____ Company _____

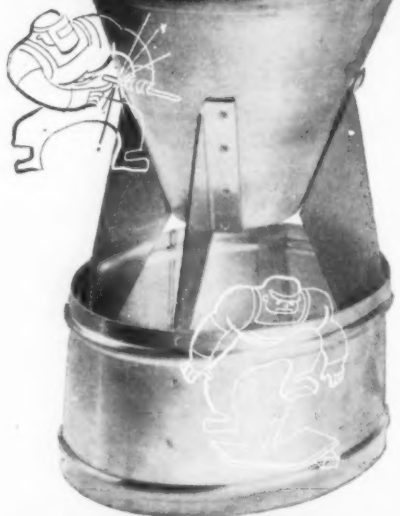
Address _____

City _____ State _____

BRANDT'S "BIG THREE"



FOR **FORMINGS
STAMPINGS
WELDMENTS**



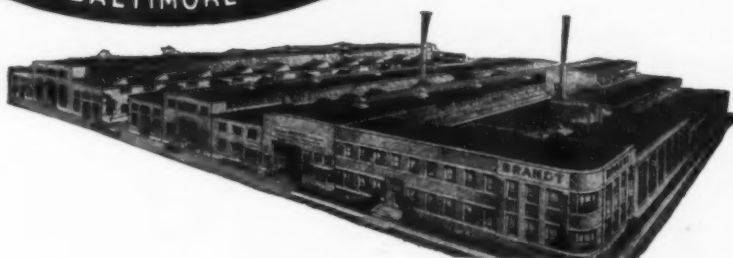
YOUR PRODUCTION BOOSTERS!

Assembly-line scheduling saves vital time! Precision workmanship to exacting specifications saves headaches! Brandt's "Big Three" are at your disposal for any metal shape, to any size, in any metal.

The many government and industrial manufacturers who call on Brandt are highly impressed with the main plant location . . . in the midst of steel mills and major rail, water and highway transportation facilities. Brandt will be happy to place these facilities at your service.

BRANDT

BALTIMORE



Send for this helpful facilities folder



CHARLES T. BRANDT, INC. Baltimore 30, Md.

Ferroalloy Prices (Effective Apr. 28, 1953)

Spiegeleisen

Contract prices gross ton; lump, fair
16-19% Mn 19-21% Mn
3% max. Si 3% max. Si
Palmerton, Pa. \$84.00 \$85.00
Pgh. or Chicago 84.00 85.00

Manganese Metal

Contract basis, 2 in. x down, cents per
pound of metal, delivered.
96% min. Mn, 0.2% max. C, 1% max.
Si, 2.5% max. Fe.
Carload, packed 34.00
Ton lots 34.00

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed
east of Mississippi, cents per pound.
Carloads 34.00
Ton lots 34.00
Less ton lots 34.00 to 37.00
Premium for hydrogen removed
metal 1.00

Low-Carb Ferromanganese

Contract price, cents per pound Mn con-
tained, lump size, del'd Mn 85-90%.
Carloads Ton
0.07% max. C, 0.06% 23.45 20.30
P, 90% Mn 27.95 29.80
0.07% max. C 27.95 29.80
0.15% max. C 27.45 29.30
0.30% max. C 26.95 28.80
0.50% max. C 26.45 28.30
0.75% max. C, 80-85% 23.45 25.30
Mn, 5.0-7.0% Si

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract
price, carloads, lump, bulk, delivered, per
lb of contained Mn 23.45

Silicomanganese

Contract basis, lump size, cents per
pound of metal, delivered, 65-68% Mn
18-20% Si, 1.5% max. C for 2% max. C
deduct 0.2¢.
Carload bulk 11.40
Ton lots 13.40
Briquet contract basis carlots, bulk
delivered, per lb of briquet 12.40
Ton lots, packed 14.50

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk,
Iowa, or Wenatchee, Wash., \$95.50 gross
ton, freight allowed to normal trade area.
Si 15.01 to 15.50 pct, f.o.b. Niagara Falls,
N. Y., \$93.00. Add \$1.055 per ton for each
additional 0.50% Si up to and including
17%. Add \$1.00 for each 0.50% Mn over
1%.

Silicon Metal

Contract price, cents per pound con-
tained Si, lump size, delivered, for ton lots
packed.
96% Si, 2% Fe 18.40
97% Si, 1% Fe 18.40

Silicon Briquets

Contract price, cents per pound of
briquet bulk, delivered, 40% Si, 2 lb 5
briquets.
Carloads, bulk 6.40
Ton lots 8.50

Electric Ferrosilicon

Contract price, cents per pound con-
tained Si, lump, bulk, carloads, delivered.
25% Si 20.00 75% Si 14.50
50% Si 12.40 85% Si 15.50
90.95% Si 17.50

Calcium Metal

Eastern zone contract prices, cents per
pound of metal, delivered.
Cast Turnings Distilled
Ton lots 2.05 2.95 3.75
Less ton lots 2.40 3.30 4.55

Ferrovandium

35-55% contract basis, delivered, per
pound, contained V. \$3.00-\$13.00
Openhearth 3.10-13.00
Crucible 3.20-13.00
High speed steel (Primus) 3.20-13.00

Ferroalloy Prices

(Effective Apr. 28, 1953)

Alifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carloads	9.96
Ton lots	11.30
Calcium molybdate, 46.3-46.6% f.o.b. Langeloth, Pa., per pound contained Mo	\$1.15
Ferrocolumbium, 50-60% 2 in. x D contract basis, delivered per pound contained Cb	
Ton lots	\$4.90
Less ton lots	4.96
Ferro-Tantalum-Columbium, 20% Ta, 40% Cb, 0.30% C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta	\$3.76
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo	\$1.32
Ferrophosphorus, electrolytic, 23-24%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton	\$65.00
10 tons to less carload	\$75.00
Ferrotitanium, 40% regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.35
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.50
Less ton lots	1.55
Ferrotitanium, 15 to 18%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload, per net ton	\$177.00
Ferrotungsten, 1/4 x down, packed, per pound contained W, ton lots, f.o.b.	\$4.45
Vanadic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa.	\$1.14
hags, f.o.b. Washington, Pa., Langeloth, Pa.	\$1.13
Manganal, 20% Si, 20% Mn, 20% Al contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk lump	14.50¢
Ton lots, bulk lump	15.75¢
Less ton lots, lump	16.25¢
Vanadium Pentoxide, 86-89% V ₂ O ₅ contract basis, per pound contained V ₂ O ₅	\$1.28
Niobium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy	
Ton lots	21.00¢
Niobium, 12-15%, contract basis, lump, delivered, per lb of alloy	
Carload, bulk	7.00¢
Boron Agents	
Barroil, contract prices per lb of alloy del f.o.b. Philo, Ohio, freight allowed, R, 3-4%, Si, 48-45%, per lb contained B	\$5.25
Borotam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Borohoram, Ti, 15-21%, R, 1-2%, Si, 2-4%, Al, 1-2%, C, 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed	
ton lots, per pound	10.00¢
Ferroboration, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots	\$1.20
F.o.b. Wash., Pa.; 100 lb up	
10 to 14% B	.85
14 to 10% B	1.20
18% min. B	1.50
Manganal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over	
No. 1	\$1.00
No. 6	57¢
No. 79	50¢
Manganese-Boron, 75.00% Mn, 15-20% B, 6% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd	
Ton lots	\$1.46
Less ton lots	1.57
Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered	
Less ton lots	\$1.30
Niex, contract basis, delivered	
Ton lots	45.00¢

over 90%
OF YOUR
MATERIAL HANDLING
REQUIREMENTS

STANDARD EUCLID CRANES,

whether they are put to Special or General Purpose use. Standard Euclid Cranes are available in capacities of 3, 5, 7-1/2, 10, 15, 20 and 25 tons in various spans.

All detail parts are standardized and jig machined to assure interchangeability.

THE EUCLID CRANE & HOIST COMPANY
1361 CHARDON ROAD, EUCLID, OHIO

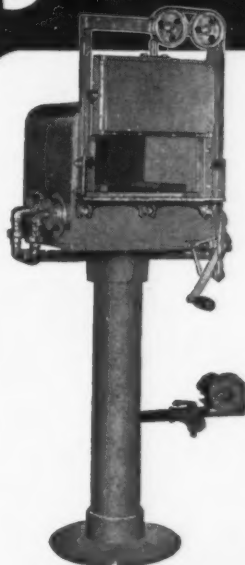
High grade, wide face, coarse pitch gearing.

Shafts short and heavy to withstand stress.

Anti-friction bearings throughout.



SAVE HOURS CUT COSTS



TURN THE HEAT ON TOOLS AND DIES With Quick-Acting JOHNSON Furnaces

Save time, save gas... heat treat carbon and high speed steel tools and dies with JOHNSON No. 130A. Two sizes offer wide temperature range. Powerful burners provide fast, uniform heat with time saving speed. Temperatures are easily controlled with accuracy. The counter-balanced door opens upwards. Firebox 7" x 13" x 16 1/2". Complete with Carbofrax Hearth, G. E. Motor and Johnson Blower. Write for Complete Catalog. Johnson Gas Appliance Company, 598 E Avenue N.W., Cedar Rapids, Iowa.

JOHNSON No. 130A Hi-Speed

For temperatures 1400° to 2350° F. \$295.00

For temperatures 1800° to 2400° F. \$325.00

F.O.B. Factory

Models also available in smaller firebox sizes.

JOHNSON

Since 1901

FURNACES FOR INDUSTRY



April 30, 1953



"... More than 50% of our employees are on the Payroll Savings Plan ..."

PAUL W. JOHNSTON

President, Erie Railroad

"We on the Erie Railroad are extremely proud that 50% of our employees are on the Payroll Savings Plan for U.S. Defense Bonds. These thousands of employees are regularly providing for their own future security and at the same time contributing to the strength of our national defense. The American habit of thrift and regular purchase of U.S. Defense Bonds Shares in America are evidences of good, sound citizenship."

Good, sound citizenship . . . the American habit of thrift . . . a belief that a strong America is a secure America . . . a management that makes the Payroll Savings Plan available to *all* its employees—these are the reasons why more than 50% of Erie Railroad employees are enrolled in the Payroll Savings Plan.

For the same four reasons, more than 7,500,000 employed men and women in thousands of other companies are active members of the Payroll Savings Plan—their take-home savings in the form of U.S. Defense Bonds total more than \$150,000,000 per month.

Is your company in the "more than 50% participation" group? If it isn't, please bring this page to the attention of your top executive. Point out to him—

Two Simple Steps to a Successful Payroll Savings Plan

1. Phone, wire or write to Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D. C.
2. Your State Director, Savings Bond Division, will show your company how to conduct a simple person-to-person canvass that will put a Payroll Savings Application Blank in the hands of every employee.

That is all management has to do. Your employees will do the rest. They, like the employees of the Erie Railroad, want to provide for their personal security and at the same time do their part in helping to keep America strong.

The United States Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

The **Iron Age**



keep
production
materials
moving
with

ELECTROLIFT WORM DRIVE HOIST

Safer, smoother, faster action features of ElectroLift will keep your materials and loads moving economically. One-man, quiet operation. Wide selection of speeds, capacities and controls.

For further information consult your ElectroLift representative listed in telephone directory.



ElectroLift, Inc., 30 Church St., New York 7, N. Y.



"SEE WHAT
WHITEHEAD
CAN DO ON THESE
STAMPINGS"



All types and sizes. Assembling, finishing, diemaking. Detroit plant with operations developed over half-a-century. Nationally known for accuracy, value, dependability. Send your blueprints for an estimate.



WHITEHEAD STAMPING CO.

1669 WEST LAFAYETTE BLVD. • DETROIT 16, MICH.

To Your SPECIFICATIONS GRIFFIN COLD ROLLED STRIP STEEL

SALES AGENTS:

WM. H. LEONORI & CO., Inc., 30 Howard St., New York 13, N. Y.;
CHARLES L. LEWIS, 1355 Market St., San Francisco 3, Cal.; J. J. LAMBERT, 323 Huntington Ave., Buffalo, N. Y.;
CENTRAL STEEL & WIRE COMPANY, 13400 North Mt. Elliott, Detroit 12, Mich.; 3000 West 51st St., Chicago 80, Ill.; Box 148 Annex Station, Cincinnati 14, Ohio.

GRIFFIN MANUFACTURING CO. • ERIE, PA.

Liquidation Sale by

AUCTION

Machinery and Equipment
formerly

Easton and Burnham Machine Co.
MANUFACTURERS OF TEXTILE MACHINERY

79 Chestnut St., Central Falls, R. I.
(5 miles from Providence)

To be sold on the premises

TUESDAY, MAY 5, 1953 AT 11 A.M.

SALE INCLUDES:

GRINDERS: #3 Cincinnati Centerless Filmatic Grinding Machine #3M3HIL-240, 25 HP; #2 Cincinnati Centerless Filmatic Grinding Machine #2M2HIL-1843, 15 HP motor; #2 Cincinnati Centerless Grinding Machine #8492H, 15 HP motor; Norton Type C Hydraulic Cylindrical Grinder 6x18 #C20014—7½ HP; Brown & Sharpe #13 Universal Tool and Grinding Machine; 8 Traverse Cylindrical Grinders 4"x30" and 4"x18" for Textile Spindle Grinding.

MACHINE SHOP: Morey #26 Turret Lathe; 10 Lipe Automatic Carbo Lathes 12x18; 20 Flatner, Monarch and Reed Lathes; South Bend, Atlas and Craftsman Bench Lathes; 8 Horizontal Boring Lathes; Brown and Sharpe #2 Universal Milling Machine; Hand Millers, Planers 24"x24"x6; Pawtucket Power Shear #7, 2 Kalamazoo Metal Cutting Band Saws; Weaver 28 ton press; Air compressors; Bradley #40 Drop Forge Hammer; 6 Spladle Drill 20' Traveling Table; 5 Drill Presses; Small Tools, etc.

WOODWORKING MACHINERY, Factory Equipment. Each machine will be sold separately. Immediate Delivery. Inspection Monday, May 4, 9 A.M. to 5 P.M.

Send for descriptive circular: write, wire, phone

EDWARD KROCK INDUSTRIES

2 FOSTER STREET

WORCESTER, MASS.

TEL. 7-3857

USE JOMAC®

HEAT AND FLAME RESISTANT MITTS

Wherever asbestos gloves are used, Jomac Mitts are giving better protection and longer life. And unlike leather, Jomac Mitts retain their flexibility when exposed to heat, stay cool, last longer. Write for descriptive catalog and samples.

ALL JOMAC HEAT AND FLAME RESISTANT MITTS ARE REVERSIBLE AND FIT EITHER HAND. ANY TWO MAKE A PAIR.



M-136-HRL

Heat Resistant Mitt with Gauntlet Cuff. Lined for extra protection of hand and wrist.

C. WALKER JONES CO., PHILADELPHIA 38, PA.

GUARANTEED TOOLS

18" x 54" centers MONARCH Lathe, motor in base, taper attachment, chucks

25/32" x 96" centers AMERICAN Pacemaker Heavy Duty Engine Lathe, taper attachment, chucks, 25HP AC motor, 1948

25"/40" x 8' centers MONARCH Model "N" Lathe, new 1935

28" x 15' centers BERTRAM (Niles Patterns) Timesaver Engine Lathe, 2 carriages, rapid traverse, AC-MD, 1943

36" x 96" centers AMERICAN Heavy Duty 16 speed geared head Lathe, AC-MD

36" x 96" centers NILES Timesaver Heavy Duty Lathe, 42" swing over ways, rapid traverse, anti-friction head, AC-MD

60" x 20' NILES BEMENT POND Geared Head Engine Lathe, rapid traverse

No. 3A WARNER & SWASEY Turret Lathe, 4 1/4" hole in spindle, bar feed, chuck, tooling, new 1942

No. 3L GISHOLT Turret Lathe, 5 1/16" hole thru spindle, 1943

36" BULLARD Vertical Turret Lathe, new 1944, 200 RPM, fine feed attachment, cutting lubricant system

100" NILES Heavy Duty Vertical Boring Mill, 2 swivel heads, rapid traverse, AC MD

No. 3-24 CINCINNATI Plain Hydromatic Mill, AC-MD

No. 4 KEARNEY & TRECKER Plain Horizontal Mill, No. 50 taper, motor in base, rapid traverse

No. 4 CINCINNATI High Power Vertical Mill, No. 50, taper, power rapid traverse, AC motor

No. 4H KEARNEY & TRECKER Vertical Mill, new 1944

No. 12 BROWN & SHARPE Plain Automatic Production Mill, AC-MD, late type

25A HEALD Rotary Surface Grinder, 24" diameter magnetic chuck, AC-MD

48" x 48" x 16' LIBERTY Planer, variable voltage drive, new 1942

36" OHIO Dreadnought Shaper, AC-MD

36" OHIO Heavy Duty V Ram Shaper, new 1944, AC-MD

42" BULLARD Vertical Turret Lathe, 2' extra high column

1 1/2" LANDIS Bolt Threader, lead screws, AC-MD

75 Ton HENRY & WRIGHT Double Crank Dieing Machine, roll feed & scrap cutter

No. 6G SELLERS Drill Grinder, new 1941

**O'CONNELL
MACHINERY CO.**

Tel: BAiley 5800

1693 GENESEE ST. BUFFALO 11, N.Y.

The Clearing House

NEWS OF USED AND REBUILT MACHINERY

More Auctions . . . Activity in the used machinery auction business has picked up in the last month. Earlier in the year, manufacturers appeared reluctant to put their equipment up for sale, possibly because they figured they would get higher bids on their good used units after the then pending price decontrol went into effect.

Industrial Plants Corp., New York, reports it has staged three used machinery auctions so far this month. Sales were around \$750,000. More than 700 used machinery dealers and manufacturers showed up for the sales at Buehler, Inc., Paramus, N. J.; Trimont Mfg. Co., Roxbury, Mass.; and White Motor Co., Montreal.

Another auction sale of machinery at Newburgh Precision Products Corp., Newburgh, N. Y. was scheduled to be held April 28. More than \$100,000 worth of machine tools offered for sale was described as brand new.

Prices Drop . . . Pointing up the softness of the used machinery market, IPC told THE IRON AGE that sale prices were 10 to 15 pct below what they were a few months ago on almost all types of machinery.

Only exception to the across-the-board price drop was on good condition used machinery of the type tool builders still have order backlogs to work off. Blanchard grinders and Bridgeport millers always bring close to new prices at the public sales.

Are More Cautious . . . It does appear, however, that the dealer now has a better opportunity to buy machinery at auction sales. Manufacturers are extremely cautious because of the confusion over exactly what is going to happen to our defense program and aren't as eager to buy as they formerly were. Dealers, however, can store a good machine for a while,

knowing that they will eventually be able to sell it. Some dealers also seem interested in building up their inventories to make their stocks more appealing.

Coast Market Poor . . . Used machinery men on the West Coast continue to worry but do see a few cheering aspects in the market.

Trade sources report that some of the used units being offered for sale are of the highest quality in years, but they have to be weeded out from a mass of overage, battered trade-ins that can only be sold by the pound. Dealers are keeping a sharp lookout for usable trade-ins that need a minimum of reconditioning and can be sold at a reasonable profit at prices still considerably below the cost of new machines.

As Controls Go . . . With the elimination of the few remaining machine tool controls fast approaching, many firms that were formerly unable to get "critical" tools will be able to buy them rather than settle for a used tool, thus removing another sales outlet for the used machinery dealer.

Some sales have been made in the past few weeks to new defense subcontractors. This has been a result of inspections made by prime contractors of low bid subcontract shops. If the low bid shop is equipped with poor machinery, the contract is usually given to another subcontractor with better facilities.

Buy Used Tools . . . As a result, many smaller firms which can't afford to buy new tools are buying used machinery in hopes of landing subcontract work.

Biggest items in demand in line with the vast number of small shops in California are: Power shears, form rolls, mills, drills and punch presses, with lesser emphasis on lathes and other machining type tools.